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Freight Car Shortage Reaches Congress

WASHINGTON — Warning that the current shortage of freight cars threatened many newspapers with inability to get newsprint, was given a subcommittee of the Senate Interstate Commerce Committee last week by the American Newspaper Publishers' Association, at a hearing attended by many industry spokesmen.

The committee engaged in an all-day session with heads of the Civilian Production Administration Iron and Steel Division, American Railway Association, steel producers, and freight car builders. Later Representative Clyde Reed, Kansas, chairman of the subcommittee, stated that steel companies had agreed to furnish steel and other material for 10,000 freight cars per month. He said production would aim at 120,000 cars for 1947, against a total of 125,000 which various speakers claimed were necessary.

The car shortage figured in the House debate leading to a roll-call decision, 269 to 100, to establish a special committee to investigate the newsprint situation. Representative Clarence Brown, Republican, Ohio, himself a publisher, was appointed chairman of the committee. He had earlier declared in debate that the newsprint situation is "worse than ever."

Brown said the committee would look into the possibility of using Southeastern states' slash pine as a source of newsprint. If this proves feasible, he said, it would make the country independent of foreign sources. Also on the committee agenda, he said, will be an inquiry into possibilities of getting paper from Alaska forests and increasing imports from Canada.

The Senate subcommittee on the same investigation, meanwhile, was scheduled to start public hearings March 4, particularly on problems affecting the newsprint supply of smaller publishers.

On the freight car outlook, steel men later were not as optimistic as some of those in the meeting. Actual production is now around 3,000 cars per month, against an announced goal of 7,000, and the steel and other components are no more plentiful than at the time the 7,000 goal was set. It was considered possible but not foregone, that production could attain an annual rate of 10,000 per month early in the summer.

McCabe Promotes Mateer to be Scott Executive Vice-President

RAYMOND C. MATEER
Advances to become Scott Executive Vice-President

CHESTER, Pa.—Thomas B. McCabe, president of Scott Paper Company, late last week named Vice-President Raymond C. Mateer to fill the newly created position of executive vice-president. Mr. Mateer will act for Mr. McCabe whenever the latter may be temporarily absent from the business, will preside at regular meetings of the senior executive staff and will be responsible for coordinating current operational problems. In order to relieve Mr. Mateer of his duties as administrator of the affairs of certain of Scott's subsidiary mills, this function is being delegated to Vice-President J. L. Ober who now heads manufacturing activities at all the company's pulp and paper plants.

Mr. McCabe also made known the promotion of five men in the production division. Harrison F. Dunning, former assistant to Vice-President Ober, becomes general manager of all paper mills owned and operated by the company and its subsidiaries. Forrest W. Brainerd, former staff technical director has been named general manager of all of the company's pulp mills. Both men report directly to Mr. Ober.

Paul C. Baldwin, formerly paper mill superintendent, assumes the position of Chester plant manager, and John McNichol, who has been finishing superintendent, becomes production manager. Richard W. Coffman, who had been assisting McNichol, is the new finishing manager.

Mr. Mateer, the new executive vice-president, has been a member of the Scott organization since 1913 when he joined the company, then located in Philadelphia, as a helper in the cabinet department. He became purchasing agent in 1922, and assistant treasurer and a member of the board of directors in 1928. In January 1938 he became a vice-president. Three years later he added the presidency of Marinette Paper Company, a wholly owned Scott subsidiary, to his functions.

Mr. Ober who now heads all production activity, became a member of Scott's sales personnel group in 1934. Two years later he was selected as the first general manager of the Brunswick Pulp & Paper Company, a pulp

(Continued on page 22)

Wisconsin Reservoirs Await Winter Ice Break-up

WAUSAU, Wis. — The average date for the spring breakup, when warmer temperatures release waters for refilling the reservoirs of the Wisconsin Valley Improvement Company has been March 8. As a result, the company empties its reservoirs as nearly as possible, in order that it may be in position to check flood waters, while impounding water for paper mills and utility companies.

This year the reservoirs are nearly empty. On February 23 the reservoirs contained only 9.28 percent of their total capacity, after having been drawn upon during the previous week for 1,292,000,000 cubic feet of water. On February 23, the reservoirs contained only 1,579,000,000 cubic feet. On the same day in 1945 the reservoirs had 1,445,000,000 cubic feet, but in eight other recent years the reservoirs showed larger reserves. Last year, on February 23, the total reserves were 6,395,000,000 and in 1939 the reserves totaled 7,494,000,000 cubic feet.

Demand Holds Strong In Hoosier Market

INDIANAPOLIS, Ind.—Demand for all kinds of paper continued to flood the local market last week and makers and jobbers say there is no indication at the present time that the demand will decline during the present year. However, the local trade — perhaps too wishfully — hopes that supplies will increase during the summer and early fall.

With the spring building season nearly here, jobbers of building paper and roofing are entering the season with fairly large and well balanced stocks. However, it will not take long when the season starts to exhaust these stocks if more are not available quickly. There is a possibility of a tie-up in the building trades as new contracts come up around April 1 and virtually every local in the union trades is asking for more hourly wage for its members.

Tissues appeared to be more easily available last week, but the demand continued very heavy. Waxed papers and cellophane also was in big demand with limited supplies.

In the container field the situation is about the same as that in other paper lines. One of the largest and oldest breweries of the state has just converted from the old type wooden case to the cardboard container. This makes virtually every brewery in the state using this sort of case and with the coming of spring, demand for these will be stimulated.

Even though the holiday season is over, demand for wrapping paper and bags in this area continued heavy last week. The outlook continues to be good with department sales heavier than ever and the independents also reporting large sales volumes.

Paper collections here have fallen off somewhat in the past two weeks and with mill demand continuing good, the wastepaper jobbers find their warehouse stocks low.

Pulp Consumers Elect Six New Directors

NEW YORK—Six new directors were elected this week by the Association of Pulp Consumers Inc. They are to serve three years: William Beckett, executive vice-president, Beckett Paper Company, Hamilton, O.; F. G. Bemis, president, Bemis Bros. Bag Company, Peoria, Ill.; E. E. Grant, president, Crystal Tissue Company, Middletown, O.; Hugo H. Hanson, president, W. C. Hamilton & Sons, Inc., Miquon, Pa., Dwight G. W. Hollister, president, A. P. W. Products Company, Inc., Albany.

R. W. Sweet, president, Sweet Bros. Paper Mfg. Co., Inc., Phoenix, N. Y. was elected a director to serve one year. The foregoing directors will serve with the following directors: C. M. Forman, Ohio Boxboard Company, Rittman, O.; Hale Holden, Jr., Byron Weston Company, Dalton, Mass.; Arnold B. Huyssoon, Continental Paper Company, Ridgefield Park, N. J.; Joseph S. Miller, New Haven Pulp and Board Co., New Haven, Conn.; Paul F. Moore, Westfield River Paper Co., Inc., Russell, Mass.; A. K. Nicholson, Hollingsworth and Vose Co., East Walpole, Mass., Harry C. Sackett, Alton Box Board Company, Alton, Ill.; N. H. Sandberg, Waldorf Paper Products Company, St. Paul, Minn.; W. B. Zimmerman, Howard Paper Mills, Inc., Franklin, O.

M. D. BARDEEN
Elected last week to be president of the Writing Paper Manufacturers Association

R. O. Warner Re-elected Groundwood's President

NEW YORK—R. O. Warner, Minnesota-Ontario Paper Company, was re-elected president of the Groundwood Paper Manufacturers Association at that group's annual convention meeting held at the Waldorf-Astoria last Monday. Highlight of the meeting was a talk by Robert E. Canfield, executive vice-president of the association, who told the group that the present market for printing papers is far out of line with past trends and suggested there is no need for frantic mill and machine building. What there is need for, said Mr. Canfield, is all the knowledge, all the information, all the good judgment, all the intelligence, and all the tolerance that can possibly be found, in order to assimilate new capacity at home and abroad, and to handle shifts within the industry in an orderly manner.

C. F. Jenkins, Kimberly-Clark Paper Company, was re-elected Western vice-president of the association. James Conley, Frazer Frazer Companies, was named Eastern vice-president. R. E. Canfield, besides his duties as executive vice-president will continue as secretary for the group.

Shipments Curbed By Box Car Shortage

NEW YORK—With priorities of grain movements calling for all available Canadian freight cars, with a production of new equipment that lags behind retirement of old cars, lack of delivery facilities is reported to threaten the newsprint market with a continued shortage. Cranston Williams, General Manager of the American Newspaper Publishers Association said last week:

"The relief given by the Canadian Government in Ottawa to newsprint mills needing empty box cars to maintain production is limited at best and does not cure a bad transportation situation directly affecting the amount of newsprint which can be produced in Canada and shipped to the United States.

"Newspapers in the United States would do well to advise the public that newspapers generally are confronted with a serious supply situation due to lack of transportation from Canada and that most any time a newspaper will have to curtail size and limit use of paper. Publishers must spread out the limited amount available.

"There are not enough box cars in Canada and the United States to care for all needs including priority allocations for grain movements. It is tragic that even now more box cars are being junked because of bad condition than new cars are coming into existence.

"On top of the empty box car shortage is a period of bad weather for several weeks which has greatly interfered with rail movements in Quebec and through the Montreal and Buffalo gateways to the United States.

"Already some newspapers have made representations to various officials in Washington. The Office of Defense Transportation is quoted as saying that they have not been asked to do anything. The responsibility for supplying empty box cars has been delegated by the Interstate Commerce Commission and the Office of Defense Transportation to the American Association of Railroads.

Rushmore Mill Expects Delays in Shipments

WATERTOWN, N. Y. — While some paper mills have been plagued by the railroad boxcar shortage, the Rushmore Paper Mill reported that its situation was "not too bad," at the present time. Officials of the concern declared that the company was utilizing both trucks and box cars although it depended mostly on railroad shipment. Rushmore officials declared that there will be some trouble in the next few weeks but believed the situation would be cleared up in the spring. They attributed the current crisis to the severe winter weather with which railroads have had to contend.

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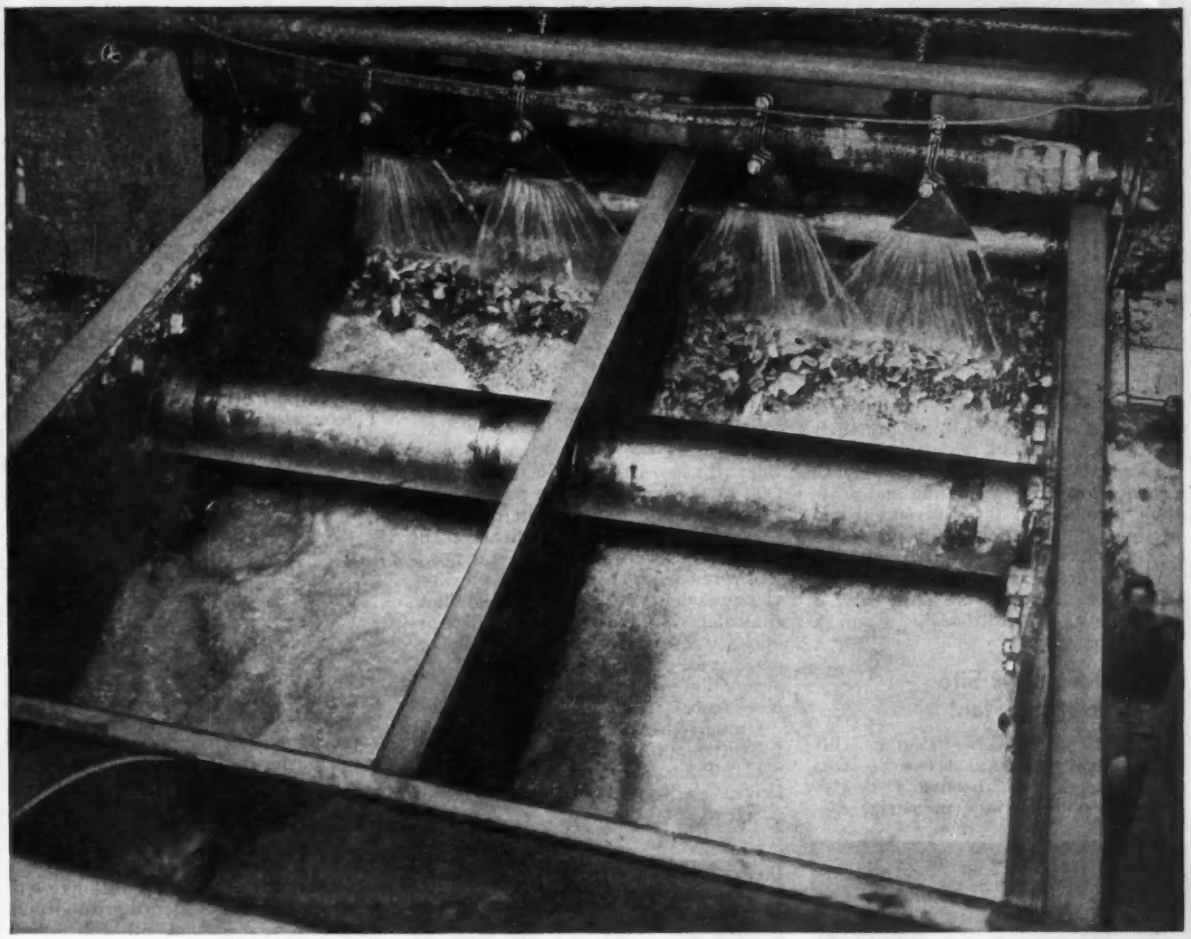

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Cotton Rag Council Will Hear Experts

NEW YORK—The National Association of Waste Material Dealers, Inc., this week stated that the Convention program for the annual meeting of the Cotton Rag Council, a division, had been completed and guaranteed one of the most interesting sessions that that division of the Associtaion has held. The meeting is to be held March 18.

Scheduled as a part of the program is an address by Dr. Harry F. Lewis, Research Associate, of the Institute of Paper Chemistry, Appleton, Wisconsin, on the subject "Problems Involved in the Utilization of Rag Waste for the Manufacture of Fine Papers." An address by Morris C. Dobrow, Executive Secretary of the Writing Paper Manufacturers Association, New York City, will bring members of the Cotton Rag Council up to date on the various raw material questions that have been before his Organization and particularly the likelihood of fine writing paper manufacturers going into the business of raising cotton to help supply their future needs for raw material.

These special features should make it one of the most interesting and profitable meetings of the Convention and all those interested in the subjects to be covered would do well to plan to attend. Harris Goldman, of Harris Goldman Company, New York City, is President of the Cotton Rag Council.

Pacific Mills Buys Site For Converting Plant

VANCOUVER, B. C. — Pacific Mills Limited has purchased a 14-acre tract of property in Vancouver's newly-zoned East Broadway industrial district as a site for a proposed new and completely modern paper converting plant, P. E. Cooper, president, announced recently. Mr. Cooper emphasized, however, that construction of the new plant may not begin for some time.

The property consists of more than 800 feet frontage on East Broadway, extending east from Nootka Street and south to the main line tracks of the Canadian National and Great Northern Railways.

Knowlton Brothers Raise Scale to 84 Cents Base

WATERTOWN, N. Y. — Members of Local 463, International Brotherhood of Paper Makers, have won a four-cent increase in hourly pay in mid-term negotiations with Knowlton Brothers, Inc. The increase, which applies to all employes of the firm, raises the base labor rate from 80 cents per hour to 84 cents. The present contract between the union and the firm runs until Aug. 1 of this year, and the negotiations were for an interim adjustment.

This was the third raise in wage rates for workers at the mill in the past year, bringing their pay rate up to the average for mills in this state.

Representatives of the firm at the negotiations were: Theodore E. Knowlton, president; David C. Knowlton, vice-president; G. Seymour Knowlton, chairman of the board; J. C. McCormick, treasurer; Robert W. McCormick, vice-president; E. Way Clark, production manager; and Thomas Newcomb.

Union representatives were: Thomas J. Huttemann, president; Mrs. Fennie S. Huffman, secretary; Frederick G. Price, Orville Richardson, and Gordon E. Drury.

Blackstone Studios

HAROLD O. NICHOLS

General Chairman, Sulphite Paper Manufacturers Association, Inc.

Blackstone Studios

ELMER H. JENNINGS

Chairman, Glassine and Greaseproof Manufacturers Association

Three Rivers Mill In New Ownership

THREE RIVERS, Mich. — The Triune Paper Box Company of Chicago has bought No. 1 mill of the Eddy Paper Corporation in Three Rivers. The mill will be formed as a Michigan corporation under the name of the Rocky River Paper Mill. John Plantefaber will serve as president of the new Michigan concern as well as of the Triune Paper Box Company. Both concerns will operate as separate corporations.

The agreement for the sale was reached about ten days ago with Eddy Paper Corporation officials whose central office is in White Pigeon and is to become effective April 1. The amount of the transaction was not announced.

General offices for both the Triune Paper Box Company and the newly formed Rocky River Paper Mill will be in Chicago. Karl Schneider, vice president and general manager of the Eddy Paper Corporation at White Pigeon also will serve as manager of the new Three Rivers concern.

The new Three Rivers concern will manufacture Bristol board and paper box board. Plantefaber said there will be no change in the present policy or personnel of the Three Rivers mill. He said an improvement program is being planned for the mill at Three Rivers.

Plantefaber will continue to maintain his residence in Kalamazoo. Previous to assuming the presidency of the Triune Paper Box Company, he was general manager and secretary and treasurer of DeGraff and Sons, Inc., when that concern was engaged in the paper business.

Hoberg Production Resumes Day After Its Fire

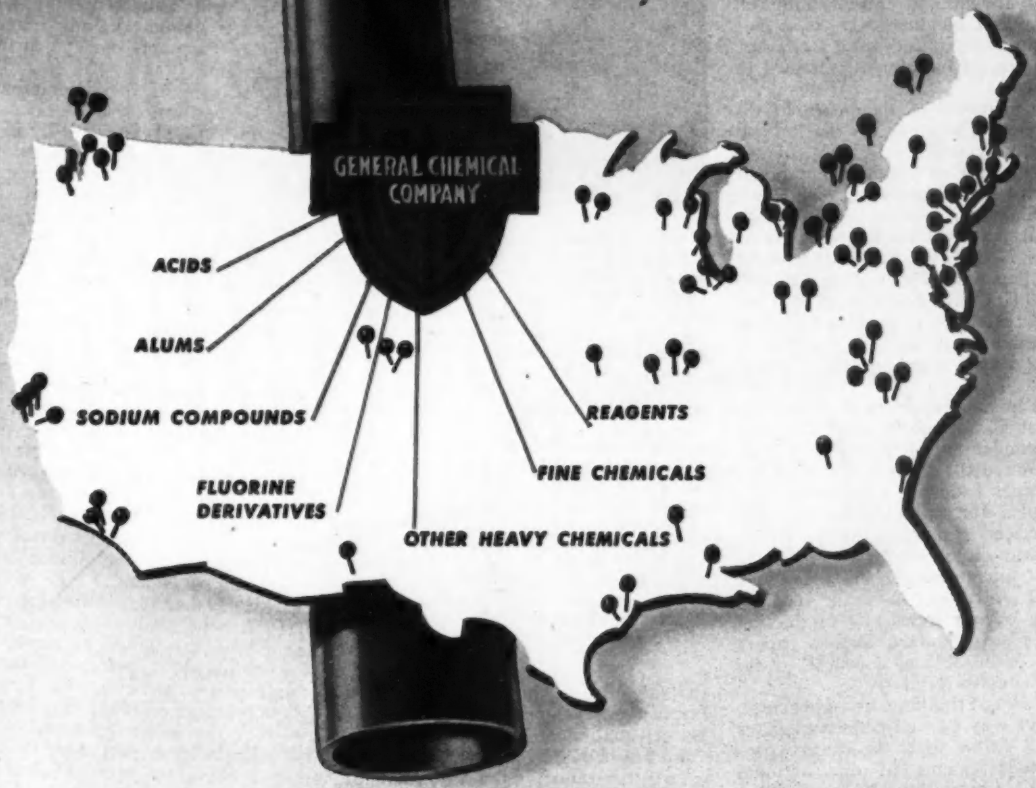
GREEN BAY, Wis.—Operations were resumed February 12 in the woodroom of the Hoberg Paper Mills Fibre division, damaged by fire the preceding day. Joseph Mercier, 79-year-old sweeper, died of suffocation as a result of the fire. He apparently was trapped and suffocated by smoke while working on the upper floor of the brick and frame building. His body was found only a few steps from the exit which he is believed to have been trying to reach when overcome.

Damage to the building was found to be limited largely to charring of the interior walls, and was not serious. Mill officials credited the automatic sprinklers with preventing a larger loss.

Because it was feared that the huge volume of water might have damaged the motors driving the machines, large unit heaters, in which fans blow a blast of hot air through a steam-heated radiator, were set up in front of the motors and run all night.

The company had adequate reserves of manufactured pulp.

Supply Line for American Industry...



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Waterproof Men Again Elect C. E. McCorison

NEW YORK—At the annual meeting of the Waterproof Paper Manufacturers Association held at the Biltmore on February 26th and 27th, Guy E. McCorison of the Thilmany Pulp and Paper Company, Kaukauna, Wis., was re-elected for a second term as president. George C. Wilkins, of Specialty Converters, Inc., East Braintree, Mass., was designated as vice-president for the second time. Philip O. Deitsch, chief administrative officer of the group since its inception five years ago, was again unanimously named to that office.

Other members of the board of directors elected to serve for the 1947-48 Association years are: C. L. Adams, Adams Paper Converting Co., Manistee, Mich.; H. A. Anderson, The Sisalkraft Company, Chicago, Ill.; C. N. Campbell, National Waterproofing Co., Camden, N. J.; J. F. Doyle, Arkell Safety Bag Co., New York, N. Y.; F. E. Hall, Chase Bag Company, Chicago, Ill.; A. J. Thiel, Angier Corporation, Framingham, Mass.; C. G. Wood, Simplex Paper Corporation, Adrian, Mich.

In his annual report to the industry, President McCorison stressed the need for a complete revision of mental attitude toward the future of the Waterproof Paper Industry, and presented a strong plea for the adoption of modern practices in merchandising efforts.

He said in part: "Looking back again at our prewar normal years, I believe I am correct in saying that the majority of our industry's production was in plain standard duplex papers such as 30/30/30 and a couple of reinforced duplex grades.

That sort of thinking, he emphasized, must give way to well conceived plans that will fit in with the future economic requirements of our national economy. Continuing, he said: "Instead of devoting our thoughts and efforts to cheapening our product and lowering its quality, we can, with greater benefit to all, develop new markets" which in effect means new consumers who prefer to use our papers because of their utilitarian aspects in place of other items such as wood, steel, plastic, or other types of protective coverings, which in effect give less protection than do our commodities.

In commenting upon Mr. McCorison's report, Philip O. Deitsch, administrative officer of the group, again directed the industry's attention to the fact that the industry had achieved a total production of something over 347,000 tons of waterproof papers in 1944 without the addition to any of the facilities of existing plants in the industry. He affirmed the statement of President McCorison that the capacity of this industry is equal to a production of 500,000 tons of finished waterproof papers annually, and that with such a condition of over-production, the salvation of the industry obviously lay in the developments of products of better quality and the extension of waterproof papers into new uses.

In furtherance of the latter thought, Mr. Deitsch recommended in his annual report that the industry establish, in cooperation with the National Bureau of Standards, a research associate program which would embody the employment of a fully qualified technician who would devote his entire time and attention to research and other affiliated matters under the guidance of the technical committee of the industry and the permanent personnel of the National Bureau of Standards. Picking up this recommendation, the industry unanimously approved the suggestion and authorized by unanimous vote a three year program along the recommended lines. Plans are now actively under way by the Association to initiate this program at the earliest possible moment, and in the near future, a meeting of its technical committee will lay out a detailed program along the lines indicated, which in turn will be presented to the board of directors of the Association by Mr. Deitsch. It is expected that this three-year program will be in active operation by mid-May of this year.

Peter J. Massey, general manager of the Kalamazoo, Mich., mill of the St. Regis Paper Company, was awarded the gold medal of the Technical Association of the Pulp and Paper Industry for his "outstanding contribution to the technical advancement of the industry." The medal, highest award of the pulp and paper industry, was presented to Mr. Massey at the association's annual luncheon at the Commodore Hotel. It was the fifteenth medal to be awarded by the association, and was made in "recognition of his (Mr. Massey's) pioneer efforts and subsequent activity in the development of the process of coating papers at high speed on the paper machine." Lyman A. Beeman (left), vice-president of St. Regis Paper Company, who collaborated with Mr. Massey (right) in many stages of development of the machine coating process, made the award on behalf of the association.

Salesmen Pick Miles As Next President

NEW YORK — The Salesmen's Association of the Paper Industry elected E. F. Miles, Crocker McElwain Company, president of their group at the association's annual business meeting at the Waldorf-Astoria on Monday. Mr. Miles, who succeeds F. D. Patterson, Flambeau Paper Company, hopes the association will be able to double its membership within the next few years, and indicated that all paper salesmen should take advantage of the excellent contacts open to members of the group.

A feature of the association's convention activities was a luncheon meeting on Tuesday attended by over 1200 who heard Governor James L. McConaughy of Connecticut speak on Paper and the People. Gov. McConaughy stressed the necessity of maintaining a free press through an adequate supply of paper. One of the basic responsibilities of paper is to continue to teach our children that while not perfect, democracy is the best form of government, and paper has made it possible to transmit this truism to one people to another, and to one generation to another. Newspapers, he said, must have paper to make the world think, laugh and weep, and by the same token magazines must have paper.

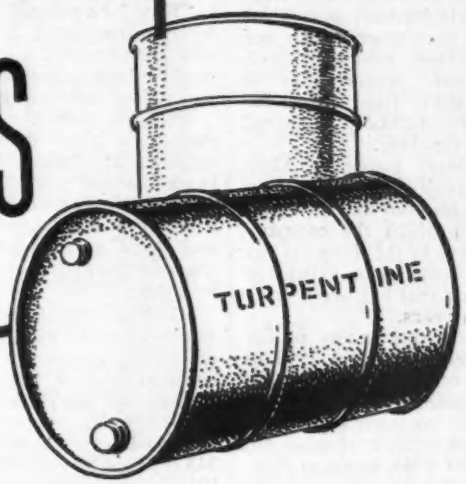
Retiring president, F. D. Patterson, acting as toastmaster, introduced all the speakers at the dinner including incoming president E. F. Miles, and E. W. Tinker, executive secretary of APPA, who made it clear that he was proud of the paper industry's record in holding down prices and noted that high prices were hardly more than "spotty" and certainly not representative of the industry's trend.

Other officers elected by the association included: *Eastern Division,* Alan Helffrich, St. Regis Paper Company, vice-president; George M. Watson, Mead Sales Company, assistant vice-president. *Western Division,* Edward J. Edwards, Howard Paper Company, re-elected vice-president; D. E. Keck, Kimberly Clark Corporation, assistant vice-president. E. G. Amos, of the headquarters staff of APPA, was reappointed by the executive board.

39th Mills' Supplies Banquet Brightens Hotel Commodore

NEW YORK—The New York Association of Dealers in Paper Mills' Supplies, Inc., held its 39th Annual Banquet last Tuesday night in the Grand Ball Room of the Hotel Commodore. With attendance well over the one thousand mark, association president, Paul J. White, called the affair one of the most successful in all of its long history. Banquet Chairman, Walter H. Martens, ably assisted by John L. Nielsen and Arthur Rosenfeld, were responsible for all arrangements of the evening's festivities.

MORE PAPER PROFITS



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FINANCE

Union Bag Earnings Top Previous Marks

NEW YORK—Union Bag & Paper Corporation, in its preliminary annual statement for the year ended December 31, 1946, reports net earnings of $5,254,953, the highest in the company's history. Subject to audit, these earnings amount to $4.13 per share of capital stock outstanding after all charges including income taxes, compared with net earnings of $1,646,467 or $1.30 per share on the same number of shares for 1945.

Net sales for 1946 totaled $44,871,180 compared with $41,391,116 reported for 1945. Provision for income taxes for 1946 was $3,715,000 compared with income and excess profits taxes of $4,721,456 for 1945. Total taxes for 1946 amounted to $4,233,240 compared with $5,226,213 for 1945.

In his preliminary statement Alexander Calder, president and chairman of the board, pointed out that 1946 was the first year in which the company was able to reflect in the form of net earnings some of the plant expansion and modernization that has taken place over the last ten years.

"Elimination of the excess profits tax," he said, "enabled us in 1946 to show some part of the net return that had been anticipated at the time the expansion of the company's plant at Savannah was authorized. It was only at the very end of 1946, however, that we were permitted to recapture a part of our higher costs through a modest adjustment of selling prices."

Mr. Calder stated that the company's expectations of an increased sales volume this year were based on the installation of a fifth paper machine at Savannah, a sizable addition to the bag factory there and a new plant for the manufacture of corrugated shipping cartons. All of these new facilities should be in operation by the latter part of 1947, he said, at which time the company will have something over 1000 tons of kraft board and paper production at Savannah daily, all of which will be converted into consumer end products. Heretofore ,the company has made kraft board which was sold to others who fabricated it into boxes.

"Thus," he pointed out, "the world's largest integrated kraft pulp, paper and bag plant will become in 1947 the world's largest integrated kraft pulp, paper, bag and corrugated box plant."

With the transfer of most of the company's kraft items to Savannah, facilities at Hudson Falls, N. Y., are being devoted more and more to production of specialties including kraft bags of a highly technical character and bags manufactured from purchased papers such as glassine and cellophane.

Working capital at the end of 1946 amounted to $8,342,388, with the ratio of current assets to current liabilities equal to 3.9 to 1. Provision for depreciation and depletion in 1946 totaled $1,097,998. The company's net worth increased from $17,469,912 to $21,072,-343 during the year. Cash dividends in 1946 amounted to $1,652,521, or $1.30 per share, compared with $1,080,485, or 85 cents per share, the year before.

General Box Income More Than Trebled

CHICAGO — The General Box Company reported last week that net income had risen to $620,844 equal to 37 cents a share of stock in 1946, from $202,783 or 12 cents a share in the preceding year. According to N. W. Embry, president, sales of corrugated containers and combination wood and fiber boxes in 1946 showed the largest increase in the company's history. Such shipments increased 66.5 percent above the preceding year, the gain having been made despite an acute shortage of paper. To provide for a possible future expansion of corrugated business the company recently purchased land adjoining its Houston, Texas, plant.

Mr. Embry also announced that General Box has established a new and modern laboratory and research department in Chicago which will play an important part in product design and will permit broader and more profitable sales operations in the future. The new laboratory replaces smaller ones previously operated in Cincinnati and Louisville.

Mr. Embry reported that the company's order file is large, especially for containers for shipment of durable goods. He added that "unless there is an unexpected decline in the general demand for durable goods items, our 1947 sales should continue at a high level, both in units and in dollars." Much of the company's good 1946 record is credited to a third quarter improvement in General Box's raw material position which has permitted the company to ship almost to the full extent of plant capacities.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending March 1, 1947

STOCKS

	High	Low	Last
A. P. W.	6¼	5⅝	5¾
Armstrong Cork Co.	50⅛	48½	49¾
Armstrong Cork Co., pf.	108¼	107	107
Celotex Corp.	32⅜	29½	31½
Celotex Corp., pf.	21⅞	21⅜	21⅞
Certain-Teed Products Corp.	19½	18¼	18¼
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	26½	25	25¼
Champion Paper & Fibre Co., pf.	110	109	110
Congoleum Nairn Co.	30	28¾	28¾
Container Corp. of America	48	45½	47
Crown Zellerbach Co.	31⅝	29¾	31½
Crown Zellerbach Co., pf. 4.20	108⅜	107½	107½
Crown Zellerbach Co., 4 pf. 4	121	118	121
Dixie Cup Co.	35¾	33	33⅞
Dixie Cup Co., A	53	52	53
Flintkote Co.	35⅝	33¼	34
Flintkote Co., pf.	110¼	109⅞	110¼
Robert Gair	7¾	7	7⅛
Robert Gair, pf.	20	19½	20
International Paper Co.	51	47⅝	48⅝
International Paper Co., pf.	104¼	104	104
Johns-Manville Corp.	137¾	131½	133½
Johns-Manville Corp., pf.	122	122	122
Kimberly-Clark Corp.	27½	26	26⅝
Kimberly-Clark Corp., pf.	115½	111¼	112
Mac Andrews & Forbes	38	36⅞	36⅞
Mac Andrews & Forbes, pf.	....	....	....
Marathon Corp.	27¾	26¼	26¼
Mead Corp.	22¾	21⅝	22
Mead Corp., pf. 4½	104½	103	103
Mead Corp., pf. 2	49	48¼	49
National Container Corp.	39¾	36½	37⅝
Paraffine Companies, Inc.	79	76	77¾
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	23⅛	21¾	21⅞
Rayonier, Inc., pf.	37½	37	37⅜
Ruberoid Co.	55	54⅞	55⅛
Scott Paper Co.	46	44½	46
Scott Paper Co., pf.	100⅜	100	100⅜
Sutherland Paper Co.	46	44½	46
Union Bag & Paper Corp.	32⅞	31¼	32½
United Paperboard Co.	18⅜	17	17⅝
U. S. Gypsum Co.	103½	99	103½
U. S. Gypsum Co., pf.	192	192	192
West Virginia Pulp & Paper Co.	45	41	43⅛
West Virginia Pulp & Paper Co., pf.	115½	112	115½

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3½s '60	103¾	103¾	103¾
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	....	....	....
Mead Corp. 3s '66	103	103	103

New York Curb Exchange

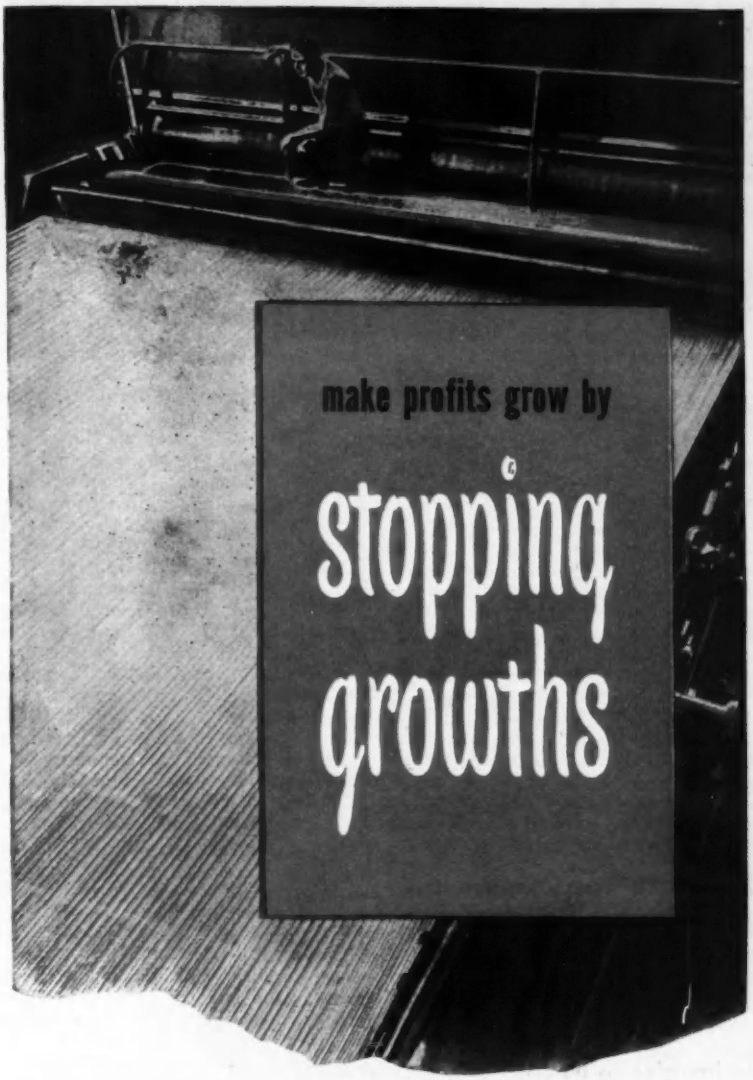
High, Low and Last for Week Ending March 1, 1947

STOCKS

	High	Low	Last
Great Northern Paper Co.	43¼	41⅛	42
Hummel Ross Fibre Corp.	32	31	32
St. Regis Paper Co.	10¼	9¼	9½
Taggart Corp.	9½	8⅝	9⅛

BONDS

American Writing Paper Co. 6s '61	....	....	....



DOWICIDES curb losses of paper

In paper manufacturing—and in other industries where micro-organisms damage materials and decrease output—Dowicides turn losses into profits.

In paper mills, slime flourishes. And slime damage is expensive. Slime causes machine "breaks," defective paper due to spots and holes, and excessive wash-up time.

Conditions fostering slime growth vary. So do organisms causing slime—algae, fungi and bacteria. Control calls for careful analysis of slime types and application of proper killing agents.

Because of their broad effectiveness, Dowicides are widely used in slime control. They cut losses, too, by prolonging wet felt life, preserving adhesives and preventing mildew on lap stock. And they make paper, boxboard and fiber board mold-resistant.

In paint, textiles, lumber, leather—wherever mold, termites or bacteria attack—ask Dow to select a Dowicide for your specific use.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit
Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle
Dow Chemical of Canada, Limited, Toronto, Ontario

CHEMICAL COMMENTS

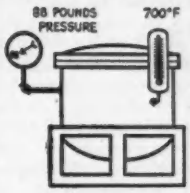
An Effective Thickener for Improved Dye Printing

Methocel, Dow cellulose derivative, has demonstrated unusual possibilities as a dispersing, thickening, and binding agent. One of its important applications is in textile printing. As a thickener for fast color salts and diazotized bases for printing on naphthol prepared grounds, it yields prints of exceptional brightness, smoothness, and sharpness of mark with greater penetration and efficiency of dyestuff. Methocel can be used in dyes either for machine or screen printing.

Coating Fabrics for Chemical Resistance

Saran F-122 Latex, a new Dow material for the textile industry, is used as a coating, sizing, impregnating and laminating agent in the treatment of fabrics. Coated with Saran Latex, fabrics are particularly well suited for industrial use where chemical resistance and durability are important. They can be made resistant to water, oils, greases, gasoline, acids and alkalies in the making of conveyor belting, tarpaulins and other products. Yarn and thread can also be sized with Saran Latex, making them waterproof and resistant to picking and linting.

Flexible Heat for Paint Processing



Flexible heating systems are a necessity to many paint and varnish firms, where high-temperature processing requirements vary widely. In one Midwest varnish plant, where processing temperature requirements vary from simple heating to complex sequences of heating and cooling, Dowtherm, the high-temperature, low-pressure heat transfer medium, has been installed. With this indirect heating system temperatures can be adjusted easily for every specific job. The company uses a 3,000,000 btu/hr. Dowtherm vaporizer for heating and an independent liquid-phase Dowtherm cycle for cooling. Simple controls permit the two cycles to be coordinated for a variety of temperature combinations.

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND AGRICULTURE

Keyes Fibre Reports Its Biggest Year

WATERVILLE, Me.—Gross sales of the Keyes Fibre Company for the year 1946 were the highest in the history of the Company. Even after making allowances for increased prices in the last quarter due to elimination of OPA ceilings, and for the sale of some egg-packing material in December, which would normally have moved in the first quarter of 1947, the tonnage sold in 1946 was the largest on record. The plant was operated to capacity during the year except as extraordinary repairs were necessary to compensate for the usual strain on equipment during the war years. Wages and certain other cost will, of course, be somewhat higher in 1947.

The most important development during the year 1946 was the decision to build a plant in the Chicago District. A tract of about 35 acres was acquired in Hammond, Ind. within the Chicago switching limits on the Indiana Harbor Belt R. R. Construction was begun as soon as necessary Federal permit could be obtained and the grading, foundations, sewers, sidetracks, etc., are now completed. It is expected that steel will be received during March and that the plant will be completed late this summer. This plant in its initial phase should increase the output of the company by about one-third.

It is not the intention of the company to curtail operations in its Waterville plant. On the contrary, certain further expansion is contemplated there. However, the increasing demand for the company's products resulted in a careful market survey and it appeared that a very substantial proportion of the products were sold within a 500 mile radius of Chicago. Expansion on a large scale at Waterville would have been at prohibitive expense because of physical limitations and the increasing level of freight rates make it even more important to have a plant nearer the center of consumption. Also the fact that the Hammond plant is only 21 miles from the "Loop" will permit delivery of many products by truck. The Chicago area provides certain raw materials at a considerable advantage over Waterville and ground wood pulp can be obtained from Canadian mills via the Great Lakes.

The early construction of the Hammond plant was made possible by a refunding of the company's 4¼% bonds in April, 1946, when the outstanding issue of $1,800,000 was called and replaced by a new issue of $2,800,000 3¼'s due in 1966. Of the new issue $1,200,000 was set aside as Construction Cash to insure the completion of the Hammond plant.

As a result of a compromise settlement with the Internal Revenue Department as to the Invested Capital basis for figuring Excess Profits Taxes a payment was made of $51,273.42 in 1946 covering alleged underpayments, including interest, for the years 1938 to 1940, inclusive. This payment was charged to General Contingent Reserve and the anticipated further payments covering the years 1941-1944 inclusive have been transferred from General Contingent Reserve to Current Liabilities.

Stone Container Finances To Retire Bank Notes

CHICAGO—Filing of an amendment to the registration statement of Stone Container Corporation is announced by Norman H. Stone, president. Manufacturers of corrugated containers, the company has been privately owned since it was started as a partnership in 1926.

Total of 250,000 shares of common stock is to be offered, according to the amended registration statement filed with the Securities and Exchange Commission, including 100,000 for the account of the company and 150,000 for members of the Stone family and trusts, with public offering to be made by a national underwriting group headed by Hornblower & Weeks.

Proceeds of the company financing will be used to retire a bank loan and debentures which will leave the company free of debt and with capitalization consisting solely of common stock. Members of the Stone family and trusts will retain 450,000 of the 700,000 shares to be outstanding.

The company operates modern container plants in Chicago and Philadelphia. Paperboard mills at Cochocton, Ohio, and Franklin, Ohio, were acquired last year. Sales totaled $9,832,739 for 1946, compared with $7,771,877 for 1945.

Westminster to Jump Its Dividend Rate

NEW WESTMINSTER, B. C. — Westminster Paper Company Ltd reports an annual dividend outlay this year of $76,462 as compared with $47,789 as a result of the decision of directors to recommend an increase in the dividend rate from five percent to eight percent. The recommendation will be before the annual shareholders' meeting in April for ratification, and the increase is scheduled to become effective with the payment of a quarterly dividend of 20 cents per share on April 30.

The quarterly basis of 20 cents per share is a change from the semi-annual basis of 25 cents per share which had been in effect since 1937. Instead of two payments of 25 cents each on May 1 and November 1, the company will now pay 20 cents per share quarterly on April 30, July 31, October 31, and January 31.

The $10 par shares of Westminster Paper Co. have been on a regular dividend basis since 1932, the initial rate of 4 percent being continued until 1937 when it was increased to 5 percent.

St. Lawrence Group Forms Committee

MONTREAL—Formation of a shareholders' representative committee of St. Lawrence Corporation, Ltd., and subsidiaries has been completed. The committee has been formed, it was said, to co-operate with the management and protect the shareholders in any reorganization plan that might be formulated.

The committee consists of W. A. Arbuckle, C. A., of Montreal, representing certain English interests; Ross Clarkson, vice-president and general manager, Royal Trust Company, Montreal; D. S. Gottesman, president, Central National Corporation, New York; Louis L. Lang, president, Mutual Life Assurance Company., Waterloo, Ont.; Hon. Charles McCrea, K. C., president, Toronto General Trusts Corporation, Toronto; Senator Lucien Moraud, K. C., director, Bank of Montreal, Quebec; Hon. Joseph-Eduard Perrault, K. C., director, Trust General du Canada, Montreal; K. M. Pringle, president, Dominion Securities Corporation, Ltd., Toronto, and R. A. Timmins, vice-president, N. A. Timmins Corporation, Montreal.

S. E. Nixon, of Montreal, has been named secretary of the committee.

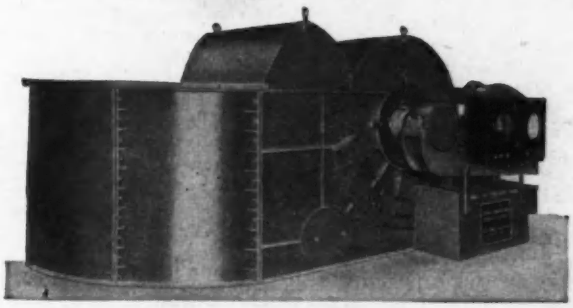
Through Ross Clarkson, of Montreal, its acting chairman, the committee issued the following statement.

"This committee represents no single interest or special group and it has no scheme to promote for financial gain. Its members are representative of all classes of security holders who constitute the ownership of St. Lawrence Corporation Limited and its interest in the three pulp and paper producing companies which the corporation presently includes, namely, St. Lawrence Paper Mills Company Limited, Lake St. John Power & Paper Company Limited, and Brompton Pulp & Paper Company Limited.

"The objective of the committee is open and plain. It is to encourage and bring about a reorganization of the corporation and these subsidiary companies by which the various units will take a more simplified and effective form. The St. Lawrence Group of companies is the only remaining large unit of the Canadian pulp and paper industry which has not reorganized its corporate structure from the period of pre-war difficulties and the members of the committee feel that the time has come to bring about a constructive reorganization in the best interest of all concerned.

"In pursuing this objective, the members of the committee have clearly in mind the public interest which the St. Lawrence companies must serve as tenants of publicly owned forest resources and the responsibility to Provincial Government authorities which this represents, as well as equitable treatment for all groups of security holders whose investment of

with the JONES-BERTRAMS PATENT BEATER



The greater paper mileage which the Jones-Bertrams Patent Beater delivers is the result of its unique design and construction. Replacing three, four, or even more regular beaters, its operation naturally provides for greater production . . . with horse power savings per ton from 35% to 60%.

UNIFORM FIBRE TREATMENT

SHORT BEATING CYCLE

AUTOMATIC CONTROL

LOW H.P. PER TON

Jones

E. D. JONES & SONS COMPANY, Pittsfield, Mass.
Builders of Quality Machinery for Paper Mills.

funds over the years has created the enterprise.

"The members of the committee sincerely wish to cooperate in fairness and good faith with the present management of the corporation, with the Government of Quebec and the Government of Ontario, and with any other interested persons who share the committee's constructive intentions. On the other hand, if need should arise, the committee will oppose any schemes aimed at speculative promotion, or which are not in the best interests of the several classes of shareholders, the companies and the industry. It invites the cooperation and goodwill of all constructive elements and will resist any opposite tendencies."

St. Lawrence Corp., Ltd., is a holding company formed in 1930. It owns 99.6 percent of the common shares of Brompton Pulp and Paper Company, Ltd., and all the preferred stock and 84 percent of the common shares of Lake St. John Power and Paper Company, Ltd. The St. Lawrence group of companies is the only remaining large unit of the Canadian pulp and paper industry which has not reorganized its corporate structure from the period of pre-war difficulties. Payments on preferred stock are still $67.75 in arrears. The genesis of the present contest goes back to the time when Arthur White, as chairman of the board, presented his scheme for reorganization of the St. Lawrence group of companies to his board and his subsequent resignation when his scheme was not accepted by the board. White was also vice-president and managing director of St. Lawrence Paper Mills.

White now appears to be associated with the Van Alstyne group, with whom Hugh MacKay of MacKay & Company and W. C. Pitfield & Company are also said to be associated. Van Alstyne is the senior partner in the New York underwriting firm of Van Alstyne, Noel & Company and Republican Senator in the New Jersey Legislature. Another influential group of financiers and industrialists said to be ready to back White is that headed by E. P. Taylor of Toronto.

Arthur White would appear to be lined up against his former associates in Dominion Securities Corp. of which he was president until its reorganization on January 1, 1944. Last week a request for proxies was sent out to St. Lawrence Corporation shareholders over the signature of Arthur White. On its own, Van Alstyne, Noel has not yet solicited proxy support, but Van Alstyne and associates already have sought unsuccessfully majority representation on St. Lawrence board to "proceed aggressively" in a plan for corporate reorganization and to "place the associated companies in a position whereby all classes of securities would receive the dividends to which they are entitled."

The battle of the titans of finance and industry will be over the form of reorganization. It will not be necessary for either group to own a majority of any of the securities. In any large company listed on the stock exchanges the securities are likely to have a wide distribution.

With the annual meeting scheduled for April the battle is expected to continue at an ever-increasing tempo until that time. Investment circles believe the St. Lawrence management will soon seek shareholder support for the impending annual meeting showdown by sending out proxy requests. Some of the "insurgent" group say they have already a majority of the capital stock of the St. Lawrence Corporation, though management denies this.

Provincial Papers Earnings Establishes a Record

TORONTO—Operating profits of Provincial Paper, Ltd., subsidiary of Abitibi Power and Paper Company, for 1946, of $1,344,615 establishes a record and compares with $931,664 in 1945 and $1,154,904 in 1944. Depreciation was lowered in 1946 to $250,000, but income taxes were sharply higher at $425,000 against $165,000. Redemption of the bonds in the latter part of 1946 lowered interest charges to $133,872 from $169,010 in 1945. Thus, net income of $355,170 (the best since 1936) compares with net of $297,154 in 1945 and $296,313 in 1944.

Based on shares outstanding at close of 1946 (350,000) these earnings were equal to $17.75 on the new four per cent preferred, and to 40 cents on common, after allowing for actual dividend payments on the old seven per cent preferred to redemption and subsequently for preferred dividend on the new four per cent preferred. Allowing for annual dividend requirements, of $40,000 on the four per cent preferred, earnings available for presently outstanding 350,000 common shares would have been 90 cents in 1946, 74 cents in 1945 and 73 cents in 1944.

During 1946 250,000 common shares were sold to Abitibi at $16 a share; the new four per cent preferred was publicly distributed at $52.50 per share. With these additional funds, company was able to provide for redemption of $2,740,000 first mortgage bonds and $3,500,000 seven per cent preferred stock, and to show net working capital of $2,234,454 at close of 1946, a reduction of $1,330,225 from $3,564,679 reported at 1945 year-end.

Crown-Zellerbach Reports Profit Up for Nine Months

CHICAGO — The Crown-Zellerbach Corporation and subsidiaries this week reported net profit for the nine months ended January 31 at $9,780,540 equal to $3.33 a share on common stock. This compares with net profit for the same period in 1946 of $5,706,189 equal to $1.75 per share. Net sales aggregated $92,346,558 compared with $75,758,529 a year ago. Paper production in the company's mills established a new high record.

Printing Committee Calls For Second Quarter Bids

WASHINGTON, D. C.—Sealed proposals will be received untill 10 a.m., March 17, in the room of the Joint Committee on Printing, in the Capitol, for furnishing the paper for the public printing and binding, and blank paper for the use of the Government departments and establishments in the District of Columbia, for the term of three months, beginning April 1.

The approximate estimated quantities set forth in detail in the schedule comprise:

2,400,000 pounds newsprint paper.
1,150,000 pounds machine-finish book paper.
50,000 pounds English-finish book paper.
800,000 pounds offet book paper.
250,000 pounds offset poster paper.
50,000 pounds antique book paper.
80,000 pounds 50% laid antique book paper.
1,250,000 pounds supercalendered book paper.
500,000 pounds coated book paper.
900,000 pounds mimeograph paper.
40,000 pounds duplicator copy paper.
300,000 pounds U S M O safety writing paper.
16,850,000 pounds writing paper.
400,000 pounds map paper.
210,000 pounds manifold paper.
2,005,000 pounds bond paper.
655,000 pounds ledger paper.
740,000 pounds index paper.
135,000 pounds cover paper.
150,000 pounds manila paper.
380,000 pounds kraft paper.
100,000 sheets white gummed paper.
40,000 pounds tag board.
65,000 sheets railroad board.
400,000 pounds wood cardboard.
50,000 pounds chemical wood tan board.
6,150,000 pounds postal card paper.
50,000 sheets pressboard.
400,000 pounds newsboard.
120,000 pounds binder's board.
40,000 pounds chestnut cover board.

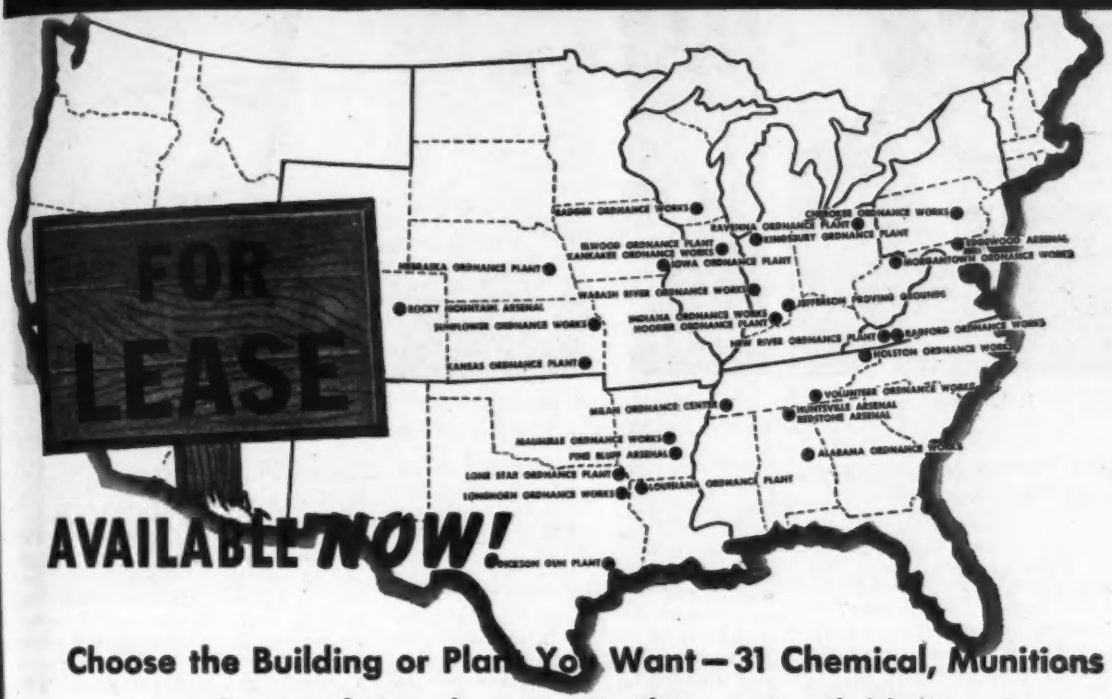
In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

Central Paper Identifies Fourth Dimension

CHICAGO—The Central Paper Company of Muskegon, Mich., has created considerable interest ih the local market with its new "fourth dimension paper." The fourth dimension is described in an interesting booklet designed to point out possible pitfalls to one who does not know or who underestimates the qualities obtainable in paper.

The "dimension" is described as "the dimension of hidden quality or quality combination. Qualities such as hardness or softness, high or low density, tear, tensile, resistance to flaming, etc., are all characterized as "fourth dimensional" in a unique treatment of inherent qualities in paper.

THESE WAR DEPARTMENT-OWNED plants may SOLVE YOUR PEACETIME PRODUCTION PROBLEMS



Choose the Building or Plant You Want—31 Chemical, Munitions Loading and Warehousing Facilities—Available Now!...

Convertible to the manufacture of fertilizers, paper products, textiles, chemicals, plastics, metals and alloys, electrical and electronic equipment, building materials, furniture, packing and assembly line operations for foods, beverages and other products.

Good labor markets and transportation.

These plants, which include complete shop and repair facilities, office buildings and utilities, were formerly used for production of oleum, nitric acid, ammonium nitrate, concentration of nitric and sulphuric acid; guns, pyrotechnics and similar items; ethylene, carbon-monoxide, phosgene, formaldehyde, hexamine and chlorinated liquid and gaseous products; carbonyl iron, paste products; fabricated wood and textile items; chemical production and reduction operations.

Present facilities include glass lined, stainless steel, high chrome iron and steel batching equipment; mixing tanks, storage for concentrated acid and other types of chemicals; equipment for nitration and reduction operations, fractional distillation, and allied multiple operations. Mechanical conveying and handling equipment available at most plants.

Over 200,000 acres of agricultural and grazing land also available for lease.

* * *

Rentals will be established by competitive bids. Closing dates for individual plants may be obtained from the Division Engineer. Arrangements for inspection of plants should be made with the Division Engineer having jurisdiction. Address all requests for complete information and "invitation to bid" to the Division Engineer of the Division in which the plant is located.

This information is not intended for use as a basis of negotiations. The Corps of Engineers reserves the right to reject any or all proposals.

NORTH ATLANTIC DIVISION
111 East 16th Street
New York 3, New York

SOUTH ATLANTIC DIVISION
50 Whitehall Street
Atlanta 2, Georgia

OHIO RIVER DIVISION
Union Central Annex Building
Cincinnati, Ohio

SOUTHWESTERN DIVISION
1114 Commerce Street
Dallas 2, Texas

GREAT LAKES DIVISION
1660 E. Hyde Park Blvd.
Chicago 15, Illinois

MISSOURI RIVER DIVISION
206 South 19th Street
Omaha 2, Nebraska

CHIEF OF ENGINEERS, U. S. ARMY, Washington 25, D.C.

CORPS OF ENGINEERS

U. S. ARMY
WASHINGTON, D. C.

J. L. Ober

Harrison F. Dunning

Forrest W. Brainerd

They assume larger responsibilities in Scott Paper Company promotions.

McCabe Names Mateer as Executive Vice-President

(Continued from page 7)

producing unit owned jointly by Scott and The Mead Corporation. In 1940 he became purchasing agent here and in 1943 was made a vice-president.

Mr. Dunning joined Scott as a salesman in 1935, and shortly thereafter moved into the sales promotion department. He was plant personnel manager at Chester in 1937 and assistant finishing superintendent in 1939. In 1941 he was made manager of the Glens Falls, N. Y., plant of Marinette Paper Company, and in December 1942 he returned here as assistant to the vice-president in charge of production.

Just last week he was elected a vice-president and director of Marinette Paper Company. In addition to the Chester and Glens Falls plants, he is general manager of mills located in Marinette, Wis.; Monominee, Mich.; Sandusky, Ohio; Hoboken, N. J.; and Fort Edward, N. Y.

Mr. Brainerd, now general manager of pulp mills located at Empire, Ore.; Anacortes, Wash.; Charleston, Nova Scotia; and an operation at Clermont, Quebec, Canada, is a director and a member of the operating committee of Brunswick Pulp and Paper and vice-president of Coos Bay Pulp Corporation. Mr. Brainerd started as a third hand in the paper mill in 1931. Later that year he became a laboratory assistant. He was made research and development engineer in 1938 and staff technical director in 1942.

The new Chester plant manager, Mr. Baldwin, has been with Scott Paper Company since 1940, when he entered the organization as a laboratory assistant. In 1943 he was made director of technical control and later that same year superintendent of the paper mill.

Mr. McNichol, who moves from the position of finishing superintendent to that of production manager at Chester, joined the company as member of the supervision group in 1939. The following year he was made supervisor of methods, and in 1943 became finishing superintendent.

Mr. Coffman entered the finishing department at Chester in 1938 as a roll runner. After completing his military leave of absence in May 1946, he returned to the company as a production trainee. Two months later he was made assistant to the finishing superintendent, his last previous position.

Scott Paper Company has grown substantially the last few years. Since 1941, the company has added five paper plants to its network of production units. Sales have jumped from $27 million in 1941 to more than $47 million in 1946. In order to promote a greater degree of coordination in all activities of the company and to utilize to the maximum the special abilities of each of the other members of the senior staff, a rearrangement of certain responsibilities for these members has been instituted at this time. Vice-president G. Willing Pepper coordinates the controller's activities with those of the secretary and treasurer and will carry the title of the vice-president in charge of finance. Vice-president Roswell H. Rausch is in charge of engineering and development, and is charged with the responsibility of planning future plant expansions and the development of engineering and research facilities. Vice-President Francis W. Plowman remains in charge of distribution.

Thilco Foremen Meet

Kaukauna, Wis.—The Thilco Foremen's club of the Thilman Pulp and Paper Company met Monday afternoon, March 3, at the Elks clubrooms. After the business meeting and dinner, the club heard a discussion and saw a demonstration of Alemite products and equipment.

Gould Dispute Settled By Consent Decree

Utica, N. Y.—Settlement of a labor dispute at the Gould Paper Company division of the Continental Can Company at Lyons Falls was heralded this week by John Johnson, regional director, District 50, United Mine Workers. Johnson said that he had received a National Labor Relations Board order closing the case.

Under terms of the order, he said, the company was directed to "cease and desist from discouraging" union membership at the plant; to reinstate with back pay E. C. Jones of Turin, who was discharged last July 15, and to post for 60 days notices to the effect that it will not interfere with union organizing activities.

Johnson said that the union, in bringing the case before the NLRB, contended that Jones was discharged because of union activity—for seeking to enroll workers in the plant as members of District 50. The company, he said, contended that Jones was fired for smoking and loafing.

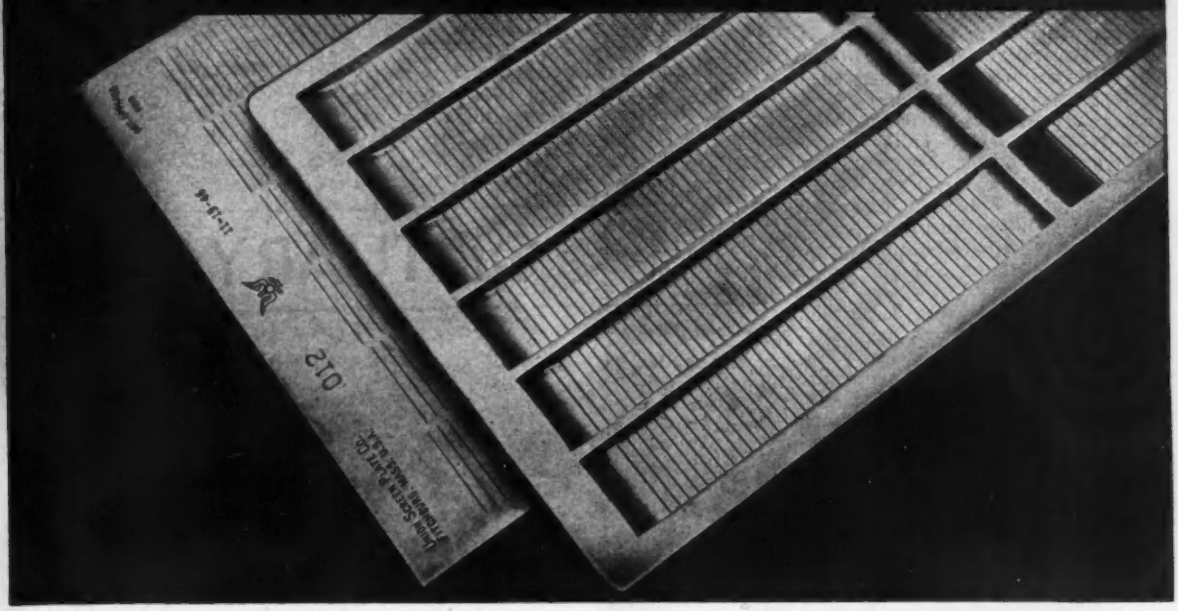
Before the case came to trial before an NLRB examiner, Johnson said, the company agreed to a "consent decree" or order to be issued by the board.

Jones is a pump maintenance man, Johnson said, and has not worked since he was discharged.

Gottesman Joins Committee On St. Lawrence Reorganization

New York—D. Samuel Gottesman, president of the Central National Corporation, and president of Gottesman & Company, Inc., both of New York, has been appointed a member of a shareholders committee formed to cooperate with the St. Lawrence Corporation and consisting of representatives of outstanding paper, pulp, banking and insurance interests both in Canada and in the United States.

CHANNEL BACK



The Modern Bronze Screen Plate

- Channel construction maintains slot stiffness
  - Stringing and clogging of slots greatly lessened
    - Slot area increased compared to old style plates
      - Sufficient strength for use on any screen equipment
- Weight of plate reduced for ease in handling
  - Amount of plate cleaning needed held to minimum
    - Plate inspection and maintenance made easier
      - Takes chromium or nickel plating more readily
- Plate has six channels and four cross-truss ribs
  - Supplied with 4 to 8 slots per inch, cut .006" and up
    - Standard dimensions are $\frac{3}{8}$" thick by 42" or 43" long
      - Available in both drilled and Witham-bevelled types

A TRIAL ORDER IS THE BEST PROOF

UNION SCREEN PLATE COMPANY

FITCHBURG, MASSACHUSETTS

Australia Is Facing Shortage of Paper

WASHINGTON—Australia is contending with a definite paper shortage, according to an American consular survey just received in this country. Although Australia manufactures some part of its requirements for newsprint, printing papers and wrapping papers, there is a market in that country, according to the survey, for the following types of imported paper: light weight bonds, airmail papers, all types of better-quality bonds, higher-grade book papers, litho-grade book papers, coated illustration papers, offset printing papers and loose leaf and ledger papers.

The report stated that because of the situation there has been some liberalization of the import licensing policy on imported paper. Import quotas are based on the fiscal year 1938-39. In general, however, the Customs Branch which has supervision of import licensing, tends to favor only import license applications for essential commodities which cannot be manufactured locally, or imported from Sterling areas.

In short supply are wrapping papers, imported tissue papers, for which importers believe they can obtain licenses without difficulty; toilet and waxing tissues, also pure sulphite and mechanical tissues are in demand.

International Nickel Names Fraser and French As Officers

NEW YORK—H. J. Fraser and H. J. French have been elected vice-presidents of the International Nickel Company, Inc. Mr. Fraser has been assistant vice-president since June, 1943. Both he and Mr. French are assistant vice-presidents of The International Nickel Company of Canada, Limited, the parent company.

A native of Brockville, Ont., Mr. Fraser joined the Huntington Works in May, 1923, following his graduation from Queen's University. After serving in various technical and operating capacities, he was promoted to the New York office in Februray, 1935, becoming assistant manager of the production department.

Mr. French, a metallurgical engineer from the School of Mines, Columbia University, in 1919 joined the staff of the U. S. Bureau of Standards in Washington, subsequently becoming assistant chief of the division of metallurgy. He joined International Nickel in 1929 and was for years in charge of alloy and steel development. Assistant manager of the Development and Research Division since September, 1943, Mr. French was recently appointed an Assistant Vice President of The International Nickel Company of Canada, Limited.

Harry Gould Named Member Of Memorial Committee

NEW YORK—Borough President of Manhattan, Hugo E. Rogers, this week named Harry E. Gould, President, Reinhold-Gould, Inc., New York paper merchants, to the special New York War and Peace Memorial Committee. The committee will determine the form the War Memorial will take and the site for its erection. Among those serving with Mr. Gould are: Mrs. Eleanor Roosevelt; Franklin D. Roosevelt, Jr.; Edward Corsi, State Industrial Commissioner; Joseph D. McGoldrick, former Controller of New York City; Brock Pemberton; Father Robert B. Gannon, President, Fordham University; George V. Denny, Jr., President, Town Hall Club; Harry Woodburn Chase, Chancellor, New York University; George Fielding Eliot; Alfred McCosker; Charles F. Noyes; Whitelaw Reid, President, New York Herald Tribune; Admiral Reginald R. Belknap; Jeremiah Milbank; William S. Paley, President, Columbia Broadcasting System.

OBITUARY

Willard Barnhart II

GRAND RAPIDS, Mich. — William Barnhart II, director of purchases for the American Boxboard Company, was found dead at his home on February 6th. Mr. Barnhart had been suffering from a nervous breakdown.

Mr. Barnhart was born in Altadena, Calif., on September 16, 1894, and was graduated from Yale in 1918. For twelve years he was engineer for the Hayes Body Company in Grand Rapids and for three years with the Auburn Motor Corporation in Auburn, Ind. He was an artillery captain in World War I. He joined the American Box Board Company in 1933 as a production consultant. Later he became a mill superintendent and director of purchases.

He was a member of the Grand Rapids Yacht Club, University Club, Army and Navy Club and the Technical Association of the Pulp and Paper Industry.

Surviving beside his mother, Mrs. Roy S. Barnhart, are a brother Darwin S. of Buffalo, N. Y., and two nephews.

George H. Dyer

RUMFORD, Me. — George H. Dyer, power supervisor of the Oxford Paper Company, passed away recently at his home in Rumford. Mr. Dyer was born on May 5, 1900, at Everett, Mass., and was graduated as a mechanical engineer from the Massachusetts Institute of Technology in 1922. He had been power supervisor at the Oxford Paper Company since 1926. He was a member of the Technical Association of the Pulp and Paper Industry and was formerly active as a member of the TAPPI Heat and Power Committee.

John F. Coan

BOSTON — Stricken with a heart attack in the office of D. F. Munroe Co., paper dealers, 289 Congress street, John F. Coan, sales manager of the A. M. Eaton Division of that company, died February 24. Mr. Coan, who was 52 years old, was well known and liked in the trade. He had been with the company 29 years. He was a member of Columbus Council 116 K. of C. and of Michael J. Perkins Post 67, American Legion. Funeral services were held from his residence, 49 Groveland street, Mattapan, February 27, with Solemn High Requiem Mass at St. Gregory's Church.

J. Cooper Stebbins

WATERTOWN, N. Y.—J. Cooper Stebbins, 72, vice-president of the W. C. Stebbins Company, Inc., paper and pulp mill supply firm, died recently at his home here after a lingering illness.

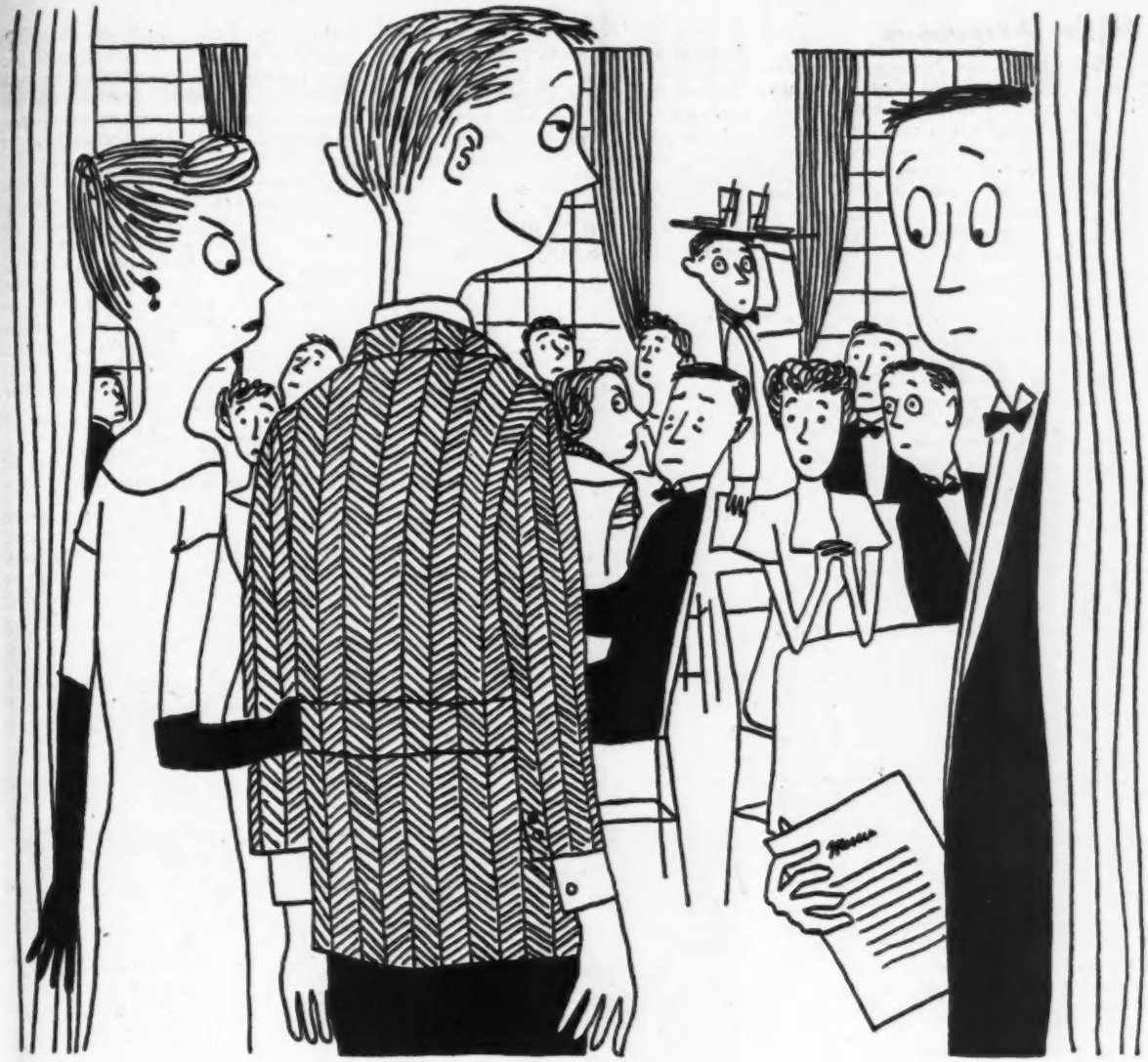
Mr. Stebbins had been associated with the company since its organization in 1923. He was the uncle of J. Reginald Stebbins, president of the firm. J. Cooper Stebbins also had been vice-president of the Agricultural Insurance Company since 1907.

Eric C. Gyllensvard

ANSONIA, Conn. — Eric C. Gyllensvard, export and New York office manager of Farrel-Birmingham Company, Inc., was killed on February 17, when struck by lightning while in Sao Paulo, Brazil, while on a business trip to South America. News of his untimely passing was a severe shock to the entire Farrel-Birmingham organization, with which he first became associated in August, 1944.

Mr. Gyllensvard was born in Sweden and after attending preparatory school in Switzerland entered Cambridge University in England, from which he received his B.S. degree in mechanical engineering in 1927. After graduation he was connected with the Standard Oil Company, first as petroleum engineer, and later as sales engineer in the service of this company's subsidiaries abroad. He spent several years in China, India and Sumatra, following which he was engaged in exploration work in Peru, Argentina and Brazil. He later joined the Sullivan Machine Company as export manager and handled this company's extensive export operations for seven years prior to joining Farrel-Birmingham.

Mr. Gyllensvard is survived by his wife and year old daughter of New Canaan, Connecticut, his mother in Sweden, and a brother in Paris.



good taste requires a better coat

Paper, too, must wear a better coat if it is to come up to the standards required in the production of high-grade coated finishes. And its manufacture—at the speed demanded—calls for a Calcium Carbonate of high quality.

Wyandotte Precipitated Calcium Carbonate is unequaled—in brightness . . . in hiding power and ink absorption . . . in freedom from grit and abrasiveness . . . in the uniformity essential to quality coating. The scientifically developed Wyandotte process makes it a superlative paper-coating pigment.

This superiority of Wyandotte Precipitated Calcium Carbonate is a result of the years that Wyandotte Chemicals Corporation has spent in the *business* of producing Calcium Carbonate. When you choose the Wyandotte Product, you're not experimenting . . . you're benefiting by our long experience.

TECHNICAL BULLETINS ARE AVAILABLE UPON REQUEST

Wyandotte
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WYANDOTTE CHEMICALS CORPORATION

WYANDOTTE, MICHIGAN • OFFICES IN PRINCIPAL CITIES

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

History of Paperboard

The first known history of paperboard and paperboard containers has been offered publicly by Board Products Publishing Co. The book is titled "Paperboard and Paperboard Containers—A History." Written by Harry J. Bettendorf, vice president of the company and co-publisher of its publications for the paperboard fields, the history weaves the fascinating story of the origins of paperboard from the pasted covers of early books; from the early China tea trade; and from other educational and economic romances of the past.

The book makes clear that the flexible, easy to use, space-saving, economical, box made possible the quick removal of products from the end of a production line—an impossibility with bulk packaging methods. It opened the road for mass national distribution through brand names and other identification on packages.

The book tells how set-up boxes grew from novelties to necessities largely through the preoccupation of Aaron Dennison, a jeweler and brother of the founder of the preesnt Dennison Manufacturing Company, with the idea of the first machine-made watches. It tells how folding boxes flowered under the genius of Robert Gair, a strong man in the paperboard fields in the late nineteenth and early twentieth centuries; how corrugated boxes developed from frilled collars and fluted materials for sweat bands for hats, into shipping containers carrying perhaps ninety per cent of today's articles that are packaged for shipment; how fibre cans wound and spiraled themselves from textile and mailing tubes up to cans, cannisters and tubes now used for countless products; and how the fibre drum was developed through costly experiment.

The book is well illustrated with pictures of early pioneers, early machines and early boxes. Included are: The original story of Geo. A. Shryock, telling in his own words how he developed the first single-cylinder board machine and made the first machine-made paperboard; early patents; early box manufacturers; early mills; development of board grades; development of box styles.

PAPERBOARD AND PAPERBOARD CONTAINERS—A HISTORY. Board Products Publishing Company, 228 North LaSalle Street, Chicago 1, Illinois, at $6.00 domestic and $7.00 foreign.

Pittsburgh Glass Tells About NaOH

PITTSBURGH — The Pittsburgh Plate Glass Company has compiled an elaborate 72-page text designed for use by technical men, buyers and executives interested in the economics of caustic soda; the operations man who is interested in the best procedures for unloading, handling and storing this chemical; the engineer who must design equipment and the student or layman who desires useful data on the characteristics, uses, forms, transportation, constants, etc., of caustic soda. The book is printed in three colors throughout and contains many useful graphs, charts and diagrams as well as being profusely illustrated with descriptive photographs.

Flowmeter Handbook Sells More Than 18,000 Copies

FOXBORO, Mass. — A recent order received by the Foxboro Company marked the sale of the 18,000th copy of "Principles and Practice of Flow Meter Engineering." This handbook, which has now virtually attained the rank of a classic, is widely used in every industrial field, and its distribution reaches to the farthest corners of the globe. It is the constant companion of operating men in the field; it is used as a textbook in engineering schools. Apparatus manufacturers whose flow problems affect the design and performance of their equipment regard the handbook as an essential every-day tool.

The first Foxboro flow meter handbook, "The Orifice Meter," was published in 1921, in the days when information for calculating orifice coefficients was considered a trade secret, to be sold with the meter. The book, which gave the public its first fully correlated data for performing all necessary orifice meter calculations, made of the industrial world one huge laboratory, with meter-users everywhere helping to check the accuracy of results.

Based on thousands of reports from users, many changes and improvements have been made in the 25 years since Foxboro first made this flow meter data conveniently available. On the basis of these time-tested results, the Foxboro Company feels that the information presented in the current (sixth) edition of "Principles and Practice of Flow Meter Engineering" can be recommended without qualification.

Wagenseil Resigns from Hollingsworth & Whitney

NEW YORK—Charles Wagenseil has resigned his post with the Hollingsworth & Whitnel Company. He joined the company in October 1905, working up through the ranks in the New York office, and in 1944 was made assistant New York sales manager. A number of years was spent covering the southern territory for the company but of late years he looked after part of the trade in Connecticut, New York, Pennsylvania and Delaware.

PROVINCIAL PAPER STEPS UP WITH KOEHLER

Provincial Paper Limited at its Georgetown, Ontario, mill is operating the first Kohler System unwind and rewind equipment to be installed in Canada. The equipment is in operation in conjunction with the company's new high-speed Warren Air Brush Coater and Merrill Dryer. The Kohler unwind equipment eliminates the necessity of shafting the rolls of paper, unwinds the paper into the coater under a constant automatic tension and changes from roll to roll at full running speed of the coater. Rewind tension is controlled by a Reliance Electric & Engineering Company electrical constant tension center wind drive, which is part of the sectional variable voltage machine drive, connected to the Kohler rewind reel. This center drive winder changes from a full roll to the succeeding empty core at full speed of the process, and may be adjusted to wind rolls automatically at any degree of hardness. A uniform sheet tension is automatically maintained at any preset value, and assures evenly wound rolls, free of wrinkles. Pictured above around the Kohler System unwind roll stand are Len Marchant, Coating Foreman; Bob McPherson, Reel Operator; Alf Thompson, Coating Machine Operator; and Ted Arnold, Assistant Reel Operator.

SPEAKING OF MAGIC...How's This?

IT'S no trick at all to get your wet felts *free* . . . right out of the pocket of your coal dealer. Here's how:

Tell your accountant to give you the production and cost records for the paper or board you have been getting from your least efficient machine. Make a note of them.

Change over to a Hamilton Felt. Speed her up and run her until the felt is worn out. (That's a long run, brother.)

Subtract the new cost per ton from the old cost and multiply by the number of tons produced. This figure represents dollars saved on steam at the driers—the price of the Hamilton Felt, right out of the pocket of the coal man.

Now compare the formation of the new sheets with that of the old. Note its perfect uniformity, its extra strength, the smoothness of the finish, the absence of felt marks. Your machine tender will tell you about the reduction of broke.

• From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster, and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

• Miami Woolen Mills •

Hamilton Felts

• Established 1858 •

TRENDS

Office of the PAPER TRADE JOURNAL, Wednesday, March 5, 1947.

Paper and paperboard demand is as strong as ever, but there are isolated indications that the supply situation is improving in some lines. Reports indicate a considerable increase in the supply of grocery bags in the New Orleans area; a better supply of paper towels is reported by Minneapolis, while Duluth reports an easing in the supply of higher-priced papers; Chicago paper demand is still out of balance with demand but dealers' inventories are said to be somewhat improved and buyer selectivity is increasing. Sanitary tissues, envelopes, gummed tape, cartons and wrapping papers are still very tight in all areas.

Curtailment of size and the use of newsprint is being threatened because of disruption of shipments from Canada. There are not enough box cars in Canada and the United States to care for all needs including priority allocations for grain movement. More and more metropolitan dailies throughout the country are being forced to cut down their normal volume of advertising and anticipate further cuts.

The index of general business activity for the week ended February 22 rose to 146.2 from 144.5 in the previous week, compared with 127.9 for the corresponding week in 1946. The index of paperboard production declined to 178.0 from 178.5 in the preceding week, compared with 157.6 for the corresponding week in 1946.

Paper production for the week ended February 22 was estimated at 104.9 percent, compared with 104.5 for the preceding week, with 98.0 for the corresponding week in 1946, with 89.7 for 1945, with 89.1 for 1944, and with 94.0 percent for 1943.

Paperboard production for the week ended February 22 was 103.0 percent of capacity, compared with 102.0 percent for the preceding week, with 97.0 for the corresponding week in 1946, with 97.0 for 1945, with 93.0 for 1944, and with 94.0 for the corresponding week in 1943.

Annual Wage

Springfield Coated Paper Corporation, Camden, N. J., recently instituted the first attempt within the paper industry at a guaranteed annual wage embodied in a contract with over 100 of its factory workers. This new policy, which guarantees all 3 year employees 40 hours of work for 52 weeks each year at the base union wage, is reported to have increased production and reduced labor turnover at the company's plant. Although the program has been in operation only since early January, paper interests throughout the country are said to have expressed uncommon interest in this new labor trend. Trade rumors have it that Louis DeJonge and Company may soon adopt the plan at its Staten Island plant which employs about 400 workers.

Pulpwood

Mechanical equipment of all kinds is in urgent demand in nearly all sections of pulpwood procurement and according to late Department of Commerce reports is not available except in limited quantities. The district adjacent to New Orleans attributes its low pulpwood stocks chiefly to equipment shortages, although reports from that area indicate a fair supply of trucks. Reports from the New England area indicate scarcity of freight cars as its most acute problem, while the Pacific Northwest reports a slight improvement in availability of cars released from wheat haulage, but there are indications that this relief may be only temporary. Elsewhere over the country the freight car shortage continues a deterrent to pulpwood movement.

Wood Pulp

Regarding prospects for a resumption of sufficient shipments from Northern Europe to adequately supplement domestic production plus Canadian imports, some responsible trade executives are definitely optimistic as to the possibilities of receiving more than 600,000 tons of pulp from Sweden this year. Current talk has it that Sweden may well send us 300,000 tons more pulp in 1947 than she did last year. Exports from Finland this year are expected to be well over the 120,000 ton mark.

Rags

Demand for cottonades featured a fairly active market for new domestic cotton cuttings this week. Most offerings of these cottonades were taken up at the $5 level. White back blue overalls showed some activity at the $8.25 level delivered mills plus dealer's commission.

Old domestic cotton rags showed their usual strength with No. 1 whites miscellaneous taken up at the $4.25 mark. No. 1 roofing rags are still reported in short supply with current offerings said to be gobbled up at the $2.20 level.

Old Rope and Bagging

Heavy wool tares continued fairly active this week at $5, and bright bagging at $4.25 to $4.50. Domestic gunny remains $4.25 per 100 pounds f.o.b. New York.

Jute and sisal cordage still prevail at 5.00c and 4.50c respectively. Foreign Manila is expected to arrive soon in larger quantities according to latest trade talk. Foreign Manila is still close to the 7.00c level and domestic around 5.75c.

Waste Paper

Over-all demand for waste paper by paper and board mills continues steady with most mills reported meeting their requirements. Some mills in the East and in the Northern Lake States district, however, are having difficulties building inventories large enough to provide a margin of safety. While the national stockpile is sufficient for over 20 days' operation, there are mills in the East with no more than a week's supply of waste paper on hand.

CHICAGO—The box car shortage in this area gave the Chicago paper market some genuine concern during the past week. Any increase in the shortage of transportation facilities coupled with the actual shortage of paper itself would be an additionally severe handicap to jobbers in this area.

The market itself showed no disposition to weaken in any degree. Prices were firm at top levels but continued to show the effects of a sensible pricing policy which the local trade is following. There was no talk of any price breaks in any of the lines as demand continued strong, as the suppliers market continued short and as increased manufacturing and operating costs caused Chicago trade representatives to wonder if present prices could be held.

Consumption of waste paper continued extremely high, according to reports, though collections were said to be better because of more favorable weather.

Many of the local trade leaders were absent from the city, attending the annual meeting of the National Paper Trade Association and allied groups held in New York City during the past week.

Safety Group Inspects Thilmany Paper Mill

KAUKAUNA, Wis.—Safety representatives from about thirty paper mills in Wisconsin were guests of the Thilmany Pulp and Paper Company, February 28, during the first plant visitation arranged by the Pulp and Paper section of the National Safety Council. The plant inspection began at 9 o'clock in the morning.

After luncheon at noon, the tour was resumed and an informal discussion session followed. The National Safety Council plans to have a series of such plant visitations throughout the state and in other areas of the country. They are expected to provide first-hand information on safe practices and safety equipment which will materially aid those who are charged with the responsibility of safety programs. Clifford Kemp is chairman of the safety department at the mill.

ARMCO STAINLESS gives you the "BIG 7"

1 LESS SLIME

2 FEWER CLEAN-UPS

3 CLEANER PAPER

4 LONGER SERVICE

5 LESS BREAKAGE

6 NO CHEMICAL REACTIONS

7 GREATER OUTPUT

Equipment made of ARMCO Stainless Steels assures seven big manufacturing and selling advantages. These rustless steels are strong and hard, with a smooth surface that is easy to clean and keep clean.

Let us show you how production and profits go up the "ARMCO Stainless Way." Get in touch with your equipment fabricator, or write us. Just address The American Rolling Mill Company, 1685 Curtis Street, Middletown, Ohio.

Export: The Armco International Corporation

SPECIAL-PURPOSE SHEET STEELS

STAINLESS ARMCO STEEL

The American Rolling Mill Company

IMPORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 2, 1947

Newsprint .....6588 rolls
Wall Paper .....1 cs.
Paperhangings .....15 bls, 28 cs.
Parchment Paper.....14 cs.
Wrapping Paper 1340 rolls, 15 cs.
Writing Paper .....11 cs.
Filter Paper .....62 cs.
Drawing Paper .....60 cs.
Photo Paper ..... 19 cs.
Printing Paper .....1 cs.
Strawboard .....5790 pkgs.
Surface-coated Paper .....11 cs.
Miscellaneous Paper .....6 cs.

NEWSPRINT

N. Y. Journal American, Markland, Liverpool, N. S., 479 rolls.
N. Y. Tribune, Inc., Markland, Liverpool, N. S., 1828 rolls.
N. Y. World Telegram, Markland, Liverpool, N. S., 737 rolls.
Brooklyn Eagle, Inc., Markland, Liverpool, N. S., 715 rolls.
Herald Statesman, Inc., Markland, Liverpool, N. S., 43 rolls.
Washington Post, (Alexandria, Va.), Markland, Liverpool, N. S., 2759 rolls.
Alexandria Gazette, (Alexandria, Va.), Markland, Liverpool, N. S., 27 rolls.

WALLPAPER

H. S. Dorf & Co., Halton R. Carey, London, 1 cs.

PAPERHANGINGS

W. H. S. Lloyd & Co., Port Freemantle, London, 4 bls, 2 cs.
W. H. S. Lloyd & Co., America, Southampton, 13 cs, 24 bls.

PARCHMENT PAPER

Great Lakes Paper Co., Czechoslovakia Victory, Antwerp, 14 cs.

WRAPPING PAPER

National Card Mounting Co., Drottningholm, Gothenburg, 173 rolls.
Curacao Trading Co., Drottningholm, Gothenburg, 61 rolls (glazed sulphate).
Green Kriegsman Paper Co., Drottningholm, Gothenburg, 1106 rolls (sulphite).
C. S. Webster & Co., Halton R. Carey, London, 5 cs. (waxed).
Meadows Wye & Co., Port Freemantle, London, 10 cs. (waxed).

WRITING PAPER

F. L. Kramer & Co., Port Freemantle, London, 6 cs.
(———), Port Freemantle, London, 5 cs.

FILTER PAPER

E. H. Sargent & Co., Drottningholm, Gothenburg, 2 cs.
H. Reeve Angel & Co. Inc., Halton R. Carey, London, 20 cs.
H. Reeve Angel & Co. Inc., Port Freemantle, London, 14 cs.
J. E. Bernard & Co., Warwick Victory, Bordeaux, 26 cs.

DRAWING PAPER

Lansen Naeve Corp., Wisconsin, Havre, 18 cs.
Winsor Newton, Inc., Halton R. Carey, London, 1 cs.

PHOTO-PAPER

J. J. Gavin Co. Inc., Halton R. Carey, London, 5 cs. (unsensitized).
E. I. DuPont de Nemours & Co., Halton R. Carey, London, 51 cs. (baryta coated base paper).
J. J. Gavin Co. Inc., Port Freemantle, London, 4 cs.

PRINTING PAPER

Stevens Nelson Paper Corp., Halton R. Carey, London, 1 cs.

STRAWBOARD

J. Salwen Paper Corp., Noordam, Rotterdam, 5790 pkgs.

SURFACE COATED PAPER

Gevaert Co. of America, West Linn Victory, Antwerp, 11 cs.

MISCELLANEOUS PAPER

(———), Thomas W. Bickett, Liverpool, 6 cs.

RAGS, BAGGINGS, ETC.

American Express Co., Halton R. Carey, London, 20 bls. new linen threads; 5 bls new linen cuttings.
Atlas Waste Manufacturing Co., Coastal Captain, Havana, 13 bls. cotton waste; 8 bls. burlap waste.
R. L. Pritchard & Co., Exchequer, Calcutta, 75 bls. hemp net cuttings.
W. J. Green & Co., Exchequer, Calcutta, 126 bls old hemp cuttings
Lush Cotton Products Co., Trevince, Cochin, 200 bls. cotton waste.
New England Waste Co., Trevince, Cochin, 204 bls. cotton waste.
Riverside Mills, Trevince, Cochin, 51 bls. cotton waste
Padawer Corp., Trevince, Cochin, 100 bls. cotton waste.
(———), Cape John, Calcutta, 210 bls. old hemp rope cuttings.
Tradesmans National Bank Trust Co., New York City, Bristol, 480 bls. rags.
National City Bank, New York City, Bristol, 174 bls. old webbing.
E. J. Keller Co. Inc., West Linn Victory, Rotterdam, 101 bls. old rags.
National City Bank, Port Freemantle, London, 136 bls, old cotton webbing.
D. Bennedetto, Inc., Port Freemantle, London, 3 bls. old cotton canvas rags.
New England Waste Co., Centuaria, Recife, 350 bls. cotton waste.
Cowa Co., Whittier Victory, Cabedello, 517 bls. cotton picker waste; 194 bls. cotton waste.
Cecil Kutz, Whittier Victory, Bahia, 55 bls. cotton waste.
Cecil Kutz, Whittier Victory, Fortaleza, 169 bls. cotton waste.

WOODPULP

Bulkley Dunton Pulp Co., Drottningholm, Gothenburg, 3048 bls. dry sulphite pulp.
Perkins Goodwin & Co., Drottningholm, Gothenburg, 1200 bls. dry chemical unbleached sulphite pulp.

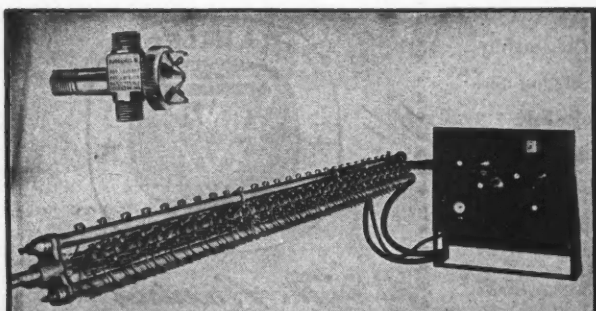
HIDECUTTINGS

John Gorvers, Cape Isabel, Barranquilla, 207 bls.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 1, 1947

Lush Cotton Products Co., Trevince, Cochin, 100 bls. cotton waste.

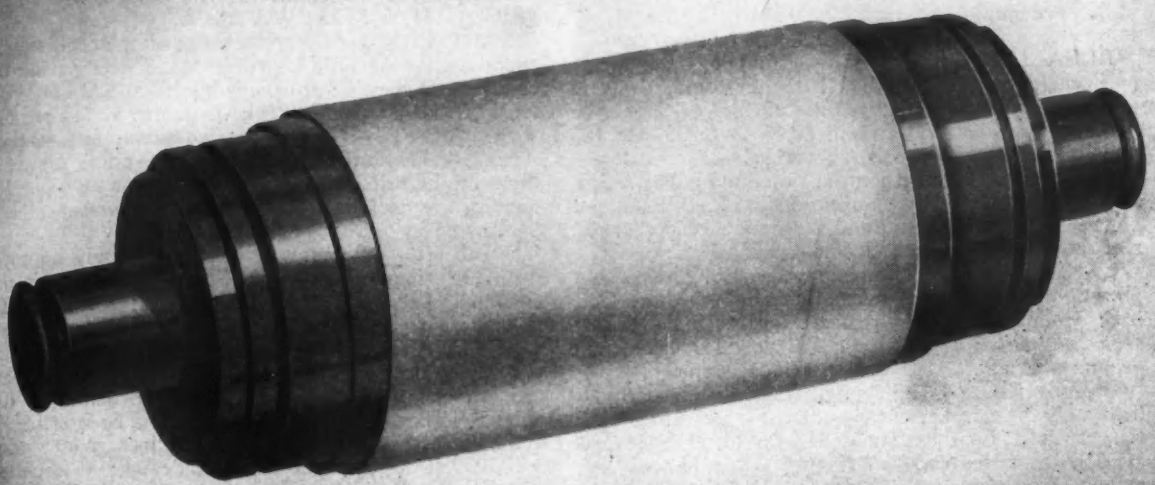


SPRACO BATTERY SPRAY MOISTENING EQUIPMENT

For the application of moisture in the form of coarse spray, fine spray or mist of uniform density across any desired width of web, with controls for varying the amount of moisture sprayed, at the same time maintaining uniform distribution.

WRITE FOR NEW TECHNICAL BULLETIN

SPRAY ENGINEERING CO. 118 CENTRAL STREET SOMERVILLE 45, MASS.



Perkins Calender Rolls are the natural result of the longest and broadest experience in this highly specialized industry.

B. F. PERKINS & SON, INC.

ENGINEERS AND MANUFACTURERS

HOLYOKE, MASSACHUSETTS

MARKETS

BLANC FIXE—Active markets hindered by freight car and raw materials shortage. Pulp is currently quoted at $55 per ton, in barrels, car lots, at works; the powder is quoted at $67.50 per ton car lots, f.o.b. works.

BLEACHING POWDER — Supplies adequate to meet current demands although there is some delay in current shipments. Quotations are unchanged. Prices on bleaching powder range from $2.65 to $3.35 per 100 pounds, in drums, car lots, at works.

CASEIN—Current prices on processed acid precipitated casein are reported around 42 to 48 cents per pound for both domestic and Argentine grades; f.o.b. shipping point, with quantity not specified at present.

CAUSTIC SODA—Demand very strong with supplies tightest ever. Shipments are behind schedule. Cutback production further reduces stocks. Solid caustic soda is reported at $2.50 per 100 pounds; flaked and ground offered at $2.90 to $3 per 100 pounds.

CHINA CLAY—Supply tight as demand continues heavy. Domestic filler clay is currently $8.50 to $9 per ton, car lots. Coating clay is $12 car lot and $16 less car lot. Imported clay is $20 to $22 per ton, car lot, export warehouse; and $45 less car lot for powdered.

CHLORINE—Market tight as demand continues to exceed output, stocks low. Lack of tank cars continues to hamper deliveries. Quotations unchanged. Chlorine is currently quoted at $2 to $2.25 per 100 pounds.

ROSIN—Gum rosin in drums, per 100 pounds net, in yard New York, car lots, B, D, $10.80; E, F, G, H, I, K, M, $11.80; WG, $12.05; WW, $12.05; Wood Rosin, per 100 pounds l.c.l., f.o.b. N. Y., B, $4.65; FF, $7.95; G, H, I, $8.75; WW, $8.95.

SALT CAKE—Demand continues to increase with supplies showing little improvement. Prices remain unchanged. Domestic salt cake is quoted at $22 to $24 per ton in bulk. Chrome salt cake is quoted at $16 per ton.

SODA ASH — Demand active as supplies continue short, previous orders filled. Contract orders prevail at the same high levels. Current prices, car lots, per 100 pounds, are as follows: in bulk, $1.05; in paper bags, $1.20; and in barrels, $1.60.

STARCH — Supplies are showing steady improvement. Previous orders filled. Starch prices remain unchanged. The pearl grade is quoted at $3.62 per 100 pounds; powdered starch at $3.73 per 100 pounds.

SULPHATE OF ALUMINA—Demand active, supply fair. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.20 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is quoted at $1.75 to $2 per 100 pounds, in bags, at works.

SULPHUR — Strong seasonal demand is reported with stocks plentiful to meet all requirements. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $35 to $45 per ton. All prices in car lots.

Kalamazoo Wood Tanks and Boxes for Paper Mills . . .

★ IF you have a TANK PROBLEM write to

★ CYPRESS LUMBER AVAILABLE

Tell us what you need . . . Maybe we can help you!

Kalamazoo Tank & Silo Co.
KALAMAZOO 16, MICH.
Specialists on Tanks for over 75 years

You say only a little **CELITE** *improves cylinder machine operation?*

***YES**... from 3% to 5% of* **CELITE** *is all you need*

By promoting better formation, CELITE* contributes many improvements to cylinder-machine operation

MORE AND MORE PAPERMAKERS are discovering that the secret of many processing improvements is the addition of a small amount of Celite to the furnish.

During formation, Celite's porous, irregularly shaped particles provide better channels for the flow of water, help keep the fibres more uniformly dispersed. This prevents premature agglomeration, and gives the initial mat uniform drainage resistance so that additional stock is deposited evenly. The sheet also drains freely without checking or crushing at the couches, with less disruption at the nips. Heavy sheets from slow stocks gain uniform density. Machine speeds improve, retention increases, losses through the wire are minimized, paper quality improves.

A Celite engineer will be glad to call and discuss the application of Celite to your particular needs. Write Johns-Manville, Box 290, New York 16, New York.

JM

*Reg. U. S. Pat. Off.

Johns-Manville

CELITE PRODUCTS *for the paper industry*

PRICES

With the elimination of price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume of business still is being done under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market.

Paper

(Delivered New York)

Standard News, per ton—

Roll, contract	$84.00	@	—
Sheets	103.00	"	—

Kraft—per cwt.—Carload Quantities Zone A, Delivered 40 lb. base weight

Superstandard Wrapping	$6.25	@	$6.50
No. 1 Wrapping.	6.00	"	6.25
Standard Wrapping	5.25	"	6.00
Standard Bag	5.25	"	6.00

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.

Wh. No. 1 Frd.	1.10	@	1.20
Wh. No. 1 M. G.	1.10	@	1.20
Wh. No. 1½	.95	@	1.10
Wh. No. 2	1.00	@	1.10
Wh. Anti-Tar.	2.25	@	3.50
Kraft Unbl.	1.15	@	1.25
Manila No. 2	.90	@	1.05

Toilet—Per Case of 100 rolls 1 M Sheets.

Unbleached	4.47	@	5.50
Bleached	6.50	"	—

Paper Towels — Per Case of 3750 Zone 1.

Wh. C. fold 11x13¼	4.09	@	—
Br. Sgl. fold 10 in.	2.37	"	2.48
Br. M'tif'd 9¼x14¾	3.48	"	—
Br. M'tif'd 9¼x9¾	2.37	"	2.48

Manila—per cwt.—C. l. f. a.

No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00

Boards, per ton—

News	*70.00	@	75.00
Chip	*67.50	"	73.00
Sgl. Mla. Lt Chip	*80.00	"	89.00
White Pat. Coated	*86.00	"	101.50
Kraft Liners 42 lb.	*84.00	"	100.00
Binders Boards	94.00	"	126.00

Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—White, Assorted Items

	Bonds		Ledgers
100% Rag Ext. No. 1	$39.75 @ $46.75		$40.90 @ $48.00
100% Rag	32.85 " 38.50		34.00 " 40.00
85% Rag	.... "		30.55 " 38.75
75% Rag	24.30 " 28.50		24.45 " 30.00
65% Rag	.... "		.... " ....
50% Rag	20.05 " 24.50		21.25 " 25.75
25% Rag	17.85 " 21.75		19.00 " 23.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers.. White, Assorted Items

	Bonds		Ledgers
No. 1	$12.00 @ $14.50		$13.15 @ $16.00
No. 2	11.25 " 13.75		12.25 " 15.00
No. 3	" "		" "
No. 4	10.60 " 13.00		11.75 " 14.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper

No. 1 Glossy Coated..	$14.70	@	$16.75
No. 2 Glossy Coated..	13.75	"	15.50
No. 3 Glossy Coated..	13.20	"	16.00
No. 4 Glossy Coated..	12.80	"	14.50
No. 1 Antique (Watermarked)	11.35	"	12.75
No. 2 Offset	10.65	"	12.25
A Grade E. F.	10.60	"	12.00
A Grade S. & S. C.	11.00	"	12.50
B Grade E. F.	10.30	"	11.75
B Grade S. C.	10.70	"	12.25
C Grade E. F.	10.00	"	11.50
C Grade S. C.	10.40	"	12.00
D Grade E. F.	9.70	"	11.00
D Grade S. & S. C.	10.10	"	11.50

Ivory & India at $.50 cwt. extra.

Wood Pulp

Domestic mill prices delivered with former OPA freight allowances.

	Per Short ADT		
Groundwood	$75.00	to	—
Unbleached Sulphite	105.00	"	—
Bleached Sulphite	115.00	"	122.50
Bleached Soda	105.00	"	115.00
Unbleached Kraft	102.50	"	—
Southern Kraft	90.00	"	102.50

Canadian mill prices delivered with freight allowances of $7.50 per ADT; unless otherwise specified:

	Per Short ADT		
Regular Kraft	$102.50	to	—
Select Unbleached Kraft (no freight allowance)	105.00	"	—
Unbleached Sulphite	105.00	"	—
Glassine Unbleached Sulphite (no freight allowance)	102.50	"	—
Bleached Soda	105.00	"	115.00
Groundwood	75.00	"	80.00
Siderums Pulping News	75.00	"	—
Hardwood and Specialty Grades	Nominal		

Swedish wood pulp prices, per ton of 2,000 lbs. air dry weight on dock usual Atlantic and Gulf ports with an average freight cost of about $9.00 per short ton included. Subject to change as it is said these prices are not satisfactory to Swedish producers:

	Per Short ADT
Bleached Sulphite	$120.00
Bleached Kraft	126.00
Unbleached Sulphite	95.00
Unbleached Kraft	89.00

Finnish quotations ex. dock, New York

	Per Short ADT
Bleached Sulphite	$165.00
Unbleached Sulphite	132.50
Unbleached Sulphite (special grade)	137.50
Unbleached Sulphate	132.50
Unbleached Sulphate (special grade)	159.00

Other European countries, at the present time, are not quoting on prompt and forward deliveries of wood pulp, because they have no tonnage available for export.

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

White Shirt	$11.50	to	$12.00
Light Silesias	7.50		
Unbleached Muslin	11.50	"	12.00
White Back Blue Overalls	8.25		
Blue Overalls	7.75		
Unbl. Fancy Shirt	4.50	"	5.00
Light Percales	5.50	"	6.00
Light Prints	5.25	"	5.95
Washables	4.00		
Bleachable Khaki	5.50	"	6.00
Unbleachable Khaki	5.00	"	5.50
Cottonades	4.50	"	5.00

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.		
No. 1 Whites Repacked	$5.00		
No. 1 Whites Miscellaneous	4.25		
No. 2 Whites Repacked	4.00		
No. 2 Whites Miscellaneous	3.50		
Blue Overalls	3.75		
Thirds and Blues Repacked	3.00		
Thirds and Blues Miscellaneous	2.50		
No. 1 Roofing Rags	2.20		
No. 2 Roofing Rags	2.10		
No. 3 Jute Bagging	2.00		
No. 4 Brussels and hard back carpets	2.00		
No. 5A Roofing Rags	2.00		

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.		
New Dark Cuttings	$6.00	to	....
New Mixed Cuttings	6.50	"	....
Light Silesias	9.00	"	10.00
Light Flannelettes	8.00	"	9.00
New White Cuttings	13.00	"	15.00
Fancy Shirt Cuttings	9.00	"	10.00
Light Prints	8.00	"	10.00
Bleachable Khaki, No. 1	7.00	"	7.50
Unbl. Khaki, No. 1	6.25	"	6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.		
No. 1 White Linens	$14.00	to	16.00
No. 2 White Linens	12.00	"	13.00
No. 3 White Linens	8.00	"	9.00
No. 4 White Linens	8.00	"	9.00
No. 1 White Cottons	10.00	"	12.00
No. 2 White Cottons	8.00	"	9.00
No. 3 White Cottons	6.50	"	7.00
No. 4 White Cottons	5.00	"	5.50
Extra Light Prints	7.50	"	8.00
No. 1 New Light Prints	6.25	"	6.75
Med. Light Prints	5.25	"	5.75
Dutch Blue Cottons	5.25	"	5.50
Checks and Blues	4.00	"	4.25
Linsey Garments	4.50	"	5.00
Dark Cottons	3.75	"	4.00
Old Shopperies	3.25	"	3.50
New Shopperies	3.25	"	3.50

BAGGING

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.		
Foreign Gunny, No. 1	$4.75	to	5.00
Domestic Gunny, No. 1	4.25	"	4.50
Light Wool Tares	4.50	"	4.75
Heavy Wool Tares	4.75	"	5.00
Bright Bagging	4.25	"	4.50
Foreign Manila Rope	6.00	"	7.00
Domestic Manila Rope	5.75	"	...
Jute Strings	4.50	"	5.00
No. 1 Sisal Strings	4.00	"	4.50
Mixed Strings	1.75	"	...

Waste Paper

Prices to Mills
(Dollars Per Ton)
F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$120.00
No. 1 Hard White Envelope Cuts	90.00	"	100.00
No. 1 Hard White Shavings, unruled	100.00	"	110.00
No. 1 Hard White Shavings, ruled	80.00	"	90.00
Soft White Shavings, one cut	95.00	"	105.00
No. 1 Soft White Shavings	85.00	"	95.00
Soft White Shavings, Misc.	65.00	"	75.00
No. 1 Fly Leaf Shavings	55.00	"	60.00
No. 2 Fly Leaf Shavings	50.00	"	55.00
No. 1 Groundwood Fly Leaf Shavings	30.00	"	33.00
No. 2 Mixed Groundwood Fly Leaf Shavings	(nominal)		
Mixed Colored Shavings	(nominal)		
Mixed Groundwood Colored Shavings	(nominal)		
Overissue Magazines	(nominal)		
No. 1 Heavy Books & Magazines	40.00	"	45.00
Mixed Books	22.00	"	25.00
No. 1 White Ledger	70.00	"	80.00
No. 2 Mixed Ledger, colored	60.00	"	70.00
New Manila Envelope Cuttings, one cut	100.00	"	110.00
New Manila Envelope Cuttings	65.00	"	75.00
Extra Manilas	40.00	"	45.00
Mixed Kraft, Env. & Bag Cuttings	75.00	"	85.00
Kraft Envelope Cuttings	100.00	"	105.00
Triple Sorted, No. 1 Brown Soft Kraft	70.00	"	75.00
New 100% Kraft Corrugated Cuttings	70.00	"	75.00
No. 1 Assorted Old Kraft	40.00	"	50.00
New Jute Corrugated Cuttings	27.00	"	—
Old 100% Kraft Corrugated Containers	(nominal)		
No. 1 News	26.00	"	27.00
No. 1 Mixed Paper	19.00	"	21.00
Box Board Cuttings	23.00	"	—
White Blank News	75.00	"	80.00
Overissue News	(nominal)		
Old Corrugated	28.00	"	30.00
Mill Wrappers	22.00	"	25.00

Twines

All Prices Nominal
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—India	.26	@	.29
Fine Polished—Fine India	.31	"	.35
Unpolished—			
Paper Makers	.20	"	.26
Tube Rope	.22	"	.27½
Wrapping	.26	"	.33½
Cotton	.70	"	—
(Hard Fiber)			
Mex. Sisal	.21	"	.24
Manila	.33	"	—
(Hemp)			
Polished Hemp	.63	"	—

PHILADELPHIA

Domestic Rags (New)

(F.O.B. Eastern Shipping Point)

Shirt Cuttings—			
New White No. 1	.07¼		
New White No. 2	.05¼		
Light Silesias	.05¼		
Black Silesias, soft	.03¼		
New Unbleached	.07½		
Washable Prints	.04¼		
Washable No. 1	.03		
Blue Overall	.05½		
Cottons—Acording to grades—			
Washable Shredding	.01¾		
Fancy Percales	.04¼		
New Black Soft	.03¼		
Khaki Cuttings—			
Unbleachable Cotton Cuttings	.03½		
Bleachable Cotton Cuttings	.04¼		
Men's Corduroy	.03½		
Ladies' Corduroy	.03		
Cottonades	.03¼		

Domestic Rags (Old)

White No. 1—Repacked	3.00	to	4.00
Mixed White	3.50	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—Miscellaneous	1.80	"	2.50
Repacked	2.20	"	—
Roofing Stock—			
Foreign No. 1	1.85	"	—
Domestic No. 1	1.75	"	—
Domestic No. 2	1.65	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F.O.B. Eastern Shipping Point)

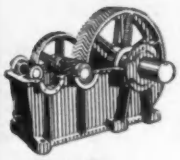
Gunny No. 1—Foreign	Nominal		
Domestic	3.00	to	3.50
No. 1 Clean Bright—Sisal Strings	.04	"	—
No. 2 Clean Bright—Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.03¼
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.85
Wool Tares, heavy	4.00	"	4.25

LINK-BELT *At the Service of All Industry*

THE MOST COMPLETE LINE OF
MECHANICAL POWER TRANSMISSION MACHINERY

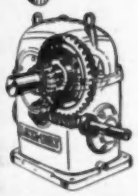
P.I.V. Gear Speed Changer

Permits infinite variation of speed while machine is running; holds set speed indefinitely, without slip or creep. All metal, wholly enclosed. ½ to 15 h.p. vertical, horizontal, plain, motorized or with extra reduction gears. Book 1874 tells all!



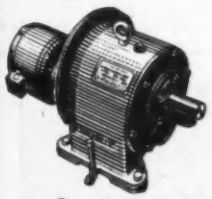
Herringbone Gear Speed Reducer

For low and medium speeds, heavy-duty applications where large reductions and shock loads are encountered. Single, double and triple reductions. Complete details in Data Book 1519-A.



Worm Gear Speed Reducer

Suited to high ratio reductions, with vertical or horizontal output shafts. Quiet, smooth operation, compact, simple and flexible, adaptable to many applications. Details in Book 1824.

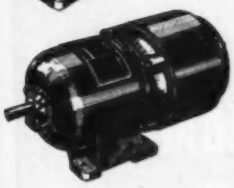


Motorized Helical Gear Speed Reducer

Simple, compact, self-contained power units for medium speed applications from 1 to 75 h.p. Details and application data in Book 1515-A.

Fan Cooled Worm Gear Speed Reducer

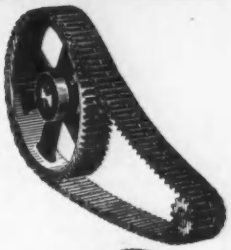
Delivers equivalent horsepower of a much larger unit, because cooled by internal fan. Permits more compact design and assures lower cost per transmitted horsepower. Send for details.



Electrofluid Drive

Combined standard induction motor with hydraulic coupling, for smooth starting—protecting motor and driven machine against shock load. Size of motor is based on running h.p., not on starting requirements. 1 to 20 h.p. Send for Book 2085.

A Link-Belt power transmission engineer has no one's ax to grind—except his customer's. Not confined by a limited line—he can recommend the type of speed reducer—the type of bearing—the type of chain drive—the exact power transmission units best suited to his customer's needs. Link-Belt engineering advice on your power transmission problems is completely unbiased. There is no reason for it to be otherwise.



Silent Chain Drive

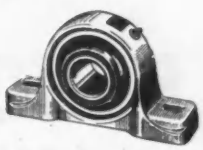
Gives positive, flexible transmission without slip at high speeds. Runs slack on short centers. Usually lowest cost installation; always lowest yearly cost. Unaffected by climatic conditions or periodic idleness. Ask for Data Book 125.

Roller Chain Drive

For transmitting power at high or low speeds, coordinating rotation of numerous shafts, in either direction; for short or long centers; runs slack and is unaffected by temperature or moisture. Details in Book 1957. Single or multiple widths.

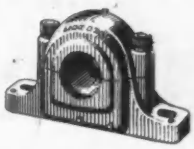
Steel, Promal and Malleable Chain Drives

For slow and medium speeds or where extraordinary strength is needed, L-B Steel, Promal and Malleable Iron chains are the standard by which performance is gauged. Standard types have been developed to meet various services. Data Book 1994.



Ball Bearing Mounted Units

Light and medium duty series, pillow blocks with solid or split housings, and flanged, cartridge or take-up units, self-aligning and fixed or floating types. Full details in Book 2094.



Roller Bearing Mounted Units

For heavy-duty service, made in split housing pillow blocks. Self-aligning, for fixed or floating shafts, and press fit or adapter type. Full data in Book 2095.

Unmounted Ball and Roller Bearings

Provide self-alignment for radial, thrust, or combinations of radial-thrust loads for all degrees of misalignment. Offer great economy of application. Details in Books 2094 and 2095.

Babbitted Bearings

In a complete line including the widest selection of types of solid and split housings, grease lubricated or self-oiling, for light and heavy service. Popular types and sizes in stock. Data in Book 1997.

LINK-BELT COMPANY

The Leading Manufacturer of Conveying and Mechanical Power Transmission Machinery

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.

10,822

No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b Phila.)
Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$115.00
No. 1 Hard White Shavings, unruled	100.00	"	—
Soft White Shavings, one cut	90.00	"	95.00
White Blank News	45.00	"	50.00
Soft White Shavings, Misc.	65.00	"	70.00
No. 1 White Ledger	52.00	"	55.00
No. 2 Ledger, colored	42.00	"	45.00
No. 1 Heavy Books & Magazines	38.50	"	40.00
Overissue Magazines	nominal		
New Manila Envelope Cuttings	65.00	"	75.00
No. 1 Assorted Old Kraft	40.00	"	—
No. 1 Mixed Paper	19.00	"	21.00
Box Board Cuttings	23.00	"	25.00
Kraft Corrugated Cuttings	nominal		
Old Corrugated	28.00	"	30.00
Overissue News	35.00	"	—
No. 1 News	26.00	"	30.00

BOSTON

Old Papers

(F. o. b. Boston)
Mill Prices, Baled

No. 1 Hard White Shavings, unruled	7.00	@	8.00
No. 1 Hard White Shavings, ruled	7.00	"	8.00
Soft White Shavings, Mis.	6.25	"	6.50
No. 1 Fly Leaf Shavings	1.65	"	1.80
No. 2 Fly Leaf Shavings	2.00	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	1.25	"	1.50
Mixed Colored Shavings	2.50	"	2.75
New Manila Envelope Cuts, one cut	5.00	"	5.50
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	3.50	"	3.75
Mixed Kraft Env. & Bag Cuttings	3.75	"	4.00
Kraft Envelope Cuttings	3.75	"	4.00
No. 1 Heavy Books & Magazines	2.50	"	2.60
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	4.25	"	4.50
Groundwood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	3.50	"	—
No. 1 Mixed Paper	—	"	.95
Overissue News	1.50	"	1.75
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	—	"	1.40
Jute Corrugated Cuttings	1.07½	"	—
Paper Strings	2.25	"	2.50

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	5.00	@	—
Domestic	5.00	"	5.12½
Sisal Rope No. 1	6.00	"	—
Sisal Rope No. 2	5.50	"	—
Mixed Rope	5.25	"	—
Mixed Strings	2.00	"	2.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	3.00	"	3.50
Manila Rope—			
Foreign	(nominal)		
Domestic	6.25	"	—
Soft Jute Rope	5.00	"	5.25
Jute Carpet Threads	6.00	"	—
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	4.75	"	5.00
Domestic	5.00	"	5.25
South America	5.25	"	—
Wool Tares—			
Foreign	4.50	"	—
Domestic	4.50	"	—
Aust. Wool Pouches	5.00	"	5.25
New Zealand Wool Pouches	5.25	"	5.50
New Burlap Cuttings	6.00	"	6.50
Heavy Baling Bagging	5.25	"	5.75
Paper Mill Bagging	3.50	"	3.75
No. 1 Roofing Bagging	1.75	"	—

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.06	@	.06½
Fancy Percales	.04¼	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.09½	"	.10
Canton Flannels, Bleached	.11	"	.12
Underwear Cutters, Bleached	.12	"	.13
Underwear Cutters, Unbleached	.11	"	.12
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.11½	"	.12
Blue Cheviots	.05½	"	.06½
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.06	"	.07
O. D. Khaki	.06	"	.06¼
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.12½	"	.13

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	2.00	"	—
No. 2	1.90	"	2.00
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	6.00	"	—

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)
Mill Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	$110.00	@	$120.00
No. 1 Hard White Shavings, unruled	105.00	"	115.00
No. 1 Soft White Shavings	80.00	"	95.00
No. 1 White Ledger	55.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	43.00
White Blank News	43.00	"	49.00
Mixed Kraft Env. & Bag Cuttings	75.00	"	85.00
No. 1 Assorted Old Kraft	45.00	"	55.00
Overissue News	38.00	"	43.00
No. 1 News	30.00	"	—
No. 1 Mixed Paper	19.00	"	20.00
Old Corrugated	33.00	"	—
Mill Wrappers	25.00	"	29.00

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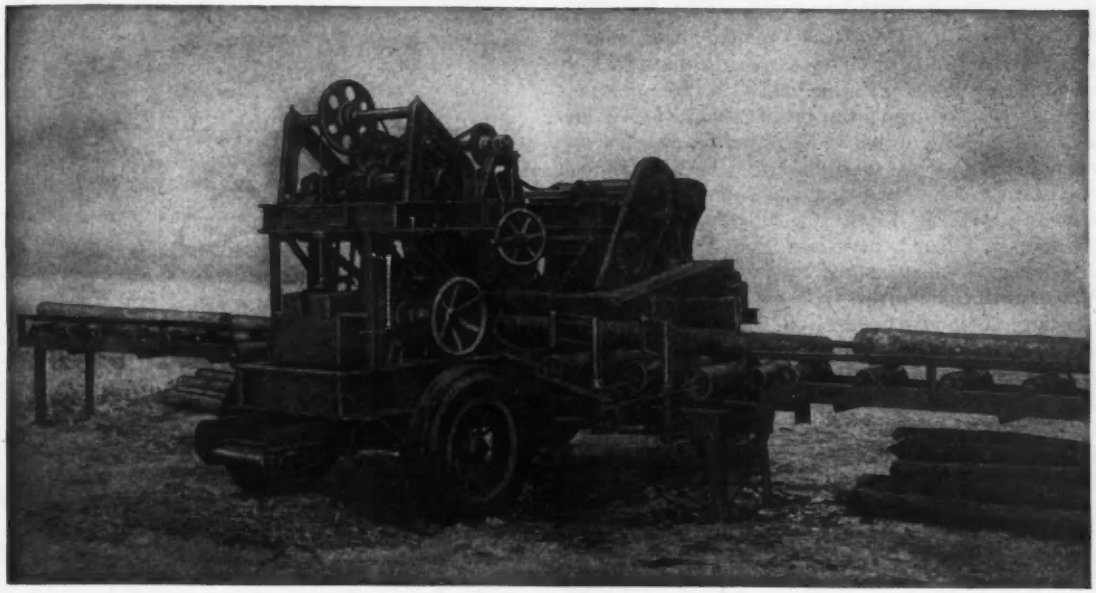

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With less labor

No Wood loss

More Economically

Nekoosa Foundry & Machine Works Inc.

Nekoosa, Wis. **U. S. A.**

IN PART

A growing trend both here and abroad is the establishment of industry-supported research institutes. In some cases they are combined educational and research organizations such as the pulp and paper industry's Institute of Paper Chemistry. In other cases they are entirely research organizations serving single industries.

In Great Britain and in Russia there is a tendency to establish a large number of research institutes. A very successful one is the Printing and Allied Trades Research Association and one dealing with paper and paperboard is being set up in England. The British organizations are being subsidized by the Government who require a substantial financial contribution by the industries served. In Russia the Government does the entire job. In Canada there is a Pulp and Paper Research Institute, co-sponsored by the Government, the CPPA and McGill University.

The largest industry research organization in the United States is the Institute of Textile Technology recently established at Charlottesville, Virginia. Ward Delaney, President, formerly associated with the Institute of Paper Chemistry, indicates that the same philosophy of a cooperative research effort closely integrated with education at the graduate level which has accounted for the success of the Institute of Paper Chemistry is now being followed by The Institute of Textile Technology.—*The Fraser VOYAGEUR.*

The order of the American Association of Railroads which has been in effect for some months calling for empty Canadian box cars to be returned directly and promptly to Canada was suspended on February 24 until March 9.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1947		Corresponding Weeks—1946	
January 18	103.8	January 19	94.4
January 25	103.7	January 26	94.5
February 1	104.0	February 2	101.5
February 8	106.2	February 9	99.7
February 15 (Revised)	104.5	February 16	95.0
February 22	*104.9*	February 23	98.0

COMPARATIVE MONTHLY SUMMARIES

1946							
		April	102.7	Aug.	104.7	Dec.	97.0
Jan	94.7	May	100.7	Sept.	101.3	Year Avg.	101.1
Feb.	98.4	June	104.6	Oct.	106.4	1947	
March	104.4	July	94.0	Nov.	105.5	Jan.	*102.1*

COMPARATIVE YEARLY SUMMARIES

	1940	1941	1942	1943	1944	1945	1946	1947
Year to Date	88.7	86.5	104.1	87.4	88.7	86.4	95.4	*104.1*
Year Average	85.6	97.4	90.4	87.8	88.1	89.7	101.1	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1947		Corresponding Weeks—1946	
January 18	103	January 19	93
January 25	101	January 26	94
February 1	102	February 2	95
February 8	104	February 9	97
February 15	102	February 16	94
February 22	*103*	February 23	97

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1946	90	97	100	99	94	97	89	99	96	100	99	92	96
1947	99												

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

EDITORIAL

Woonsocket Curtails

Respectfully submitted to all of the Congressional committees and all of the Bureaus at Washington—to everyone in fact who has perfected the art of stringing out the process of getting an "over-all picture" is the patiently friendly statement printed a few days ago in the pages of the "Woonsocket Call" in the Rhode Island city which gives the paper its name. The readers of that paper, it appears, were going to get a little less for a while, because a shipment of newsprint which was to have been loaded four days earlier on the cars in Canada had not yet been started for its destination—no cars. The newspaper found itself with enough inventory to print normal editions for another ten days or so; hence it appeared to be the part of prudence to start conservation without further delay. "If we continue publication, even at our current restricted rate of consumption, and more paper fails to arrive on schedule," the editor adds in his apology to the readers, "it might become necessary to omit publication entirely for several days.

"Such a contingency must be averted at all costs, not only for the sake of our readers who are entitled to an uninterrupted public service, but for the advertisers who might well suffer considerable financial loss through failure to move merchandise. Moreover, the many dealers and newspapers carriers must be protected in their business ventures.

"The shortage of newsprint is world-wide. Paper in the form required for publication of The Call is just not available in quantities beyond those stipulated in contracts with manufacturers. The Woonsocket Call's newsprint comes from the Three Rivers, P. Q., mills of the St. Lawrence Paper Company and Canadian International Paper Company, and from the Millinocket, Maine, mill of the Great Northern Paper Company. All three suppliers have worked with their newspaper customers to spread the thin supply fairly, in the face of disheartening difficulties.

Then, after explaining that the current condition is compounded by a box car shortage that is made acute by the priority use of freight cars to move wheat from western Canada, the paper outlines measures that it has taken to restrict its use of newsprint. Advertising will be limited to specific maximums. Miscellaneous features and certain comic strips will be condensed or omitted entirely, as the day to day situation demands. Even the masthead will be reduced, and editorial comment will be confined to a single column or less. Pictures will be selected for their news value, only. All news stories will be condensed to essential facts. Comic strips which have been outstanding favorites for years, and whose continuity would be lost by suspension, will be continued.

British Problems Pile Up

Lest we forget that even our most annoying troubles may be dwarfed when the are placed beside those which others have to undergo two significant short bits from the World's Paper Trade Review, of London, serve to be suggestive. The first, which might serve as an introduction to the second, reports an inquiry in the House of Commons as to the total amounts of paper, by weight, that have been used by publications first published after August 16, 1940, and what percentage this represents of the total consumption of newsprint for the last four monthly periods.

In reply, Sir S. Cripps said: "As no license is now necessary to enable any new newspaper or periodical publication to be published provided that it does not use more than 8 cwts. of paper in a four months period, I am unable to state the weight of paper used by publications first published after August 16th, 1940.

Mr. Butcher: Is the right hon. and learned gentleman aware that the restrictions very seriously handicap journals dealing with new inventions, such as radar, plastics, and so on, and may have some detrimental effect on our export trade?

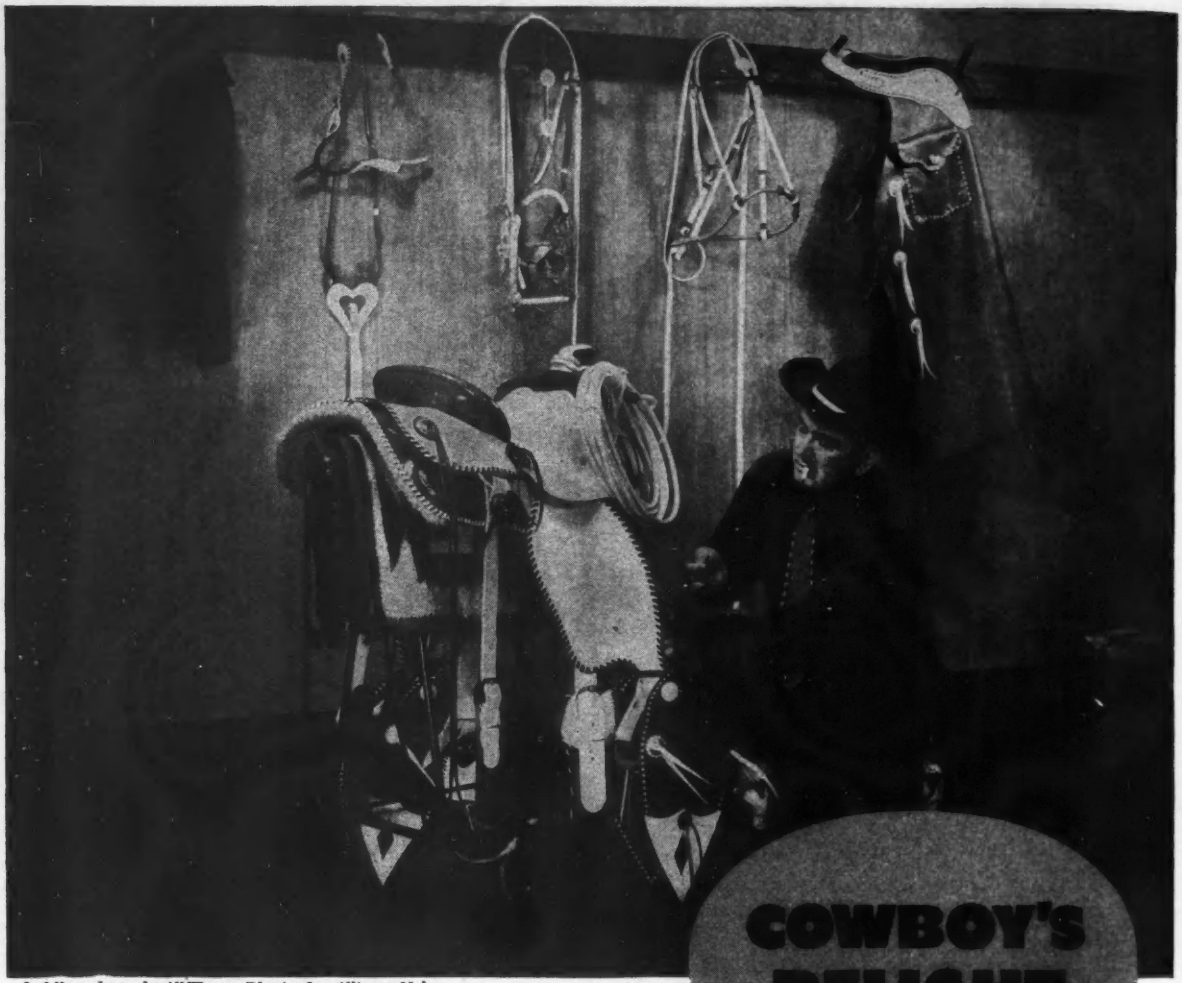
Sir S. Cripps: "I am aware that many journals are, unfortunately, being hampered by shortage of paper."

The second, even shorter, is also made sharper in its meaning through its very brevity. "For the first time," the paragraph begins, "since it was founded in 1879, the "Review" will suffer a break in the continuity of publication as a result of the present fuel crisis. Unless present arrangements are altered, this journal, in common with other periodical and trade papers throughout the country, will have to suspend publication for at least two consecutive issues after this issue. Thus the 'Review' will be prevented from fulfilling its vitally important function to home and export industry, a position which did not arise even in the worst days of the War and blitzkrieg, and which is unprecedented in the history of the country.

Reports and communications should continue to reach us as usual, and readers are asked to keep in touch with this office so that we might advise them to the best of our ability of any developments in the industry that may arise during the period of enforced suspension."

W. L. Cook

EDITOR



Saddle and gear by All Western Plastics Co., Alliance, Neb.

COWBOY'S DELIGHT

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122 E. 42nd ST., NEW YORK 17, N. Y. Edited By R. G. MACDONALD, Secretary

Synthetic Resins For Use In The Formulation Of Nitrocellulose Paper Lacquers*

By J. G. Little[1] and C. D. Ender[2]

Abstract

Lacquers may be used to impart protective and decorative properties to paper, glassine, or cellophane and the properties imparted by the various components are indicated.

Using a ½ second nitrocellulose as a base, experimental data are presented showing the effects of the addition of various resins on use properties. For determinations of formulation, use is made of triangular coordinates or the so-called "ternary" diagram. This is described rather extensively.

Prior to the war, paper, glassine, board, cellophane, cellulose acetate film, metal foil, and Pliofilm were widely used as decorative and protective packaging media for industrial food and pharmaceutical products. The use of these materials in protective packaging applications reached its highest state of efficiency during the war. Paper, glassine, and cellophane for the majority of uses during this period, as protective packaging media, were rarely used as manufactured. This was because each product lacked to a varying degree one or more properties usually required in a good protective packaging material. For such uses it was necessary that these packaging materials be characterized by one or more of the following properties: water vaporproofness, waterproofness, grease resistance, wet strength, gasproofness, heat-seal, excellent tensile and tear strength, retention of protective properties over a wide range of temperatures, and printability.

In order to obtain the desired properties in packaging materials based on paper, glassine, cellophane, or board stock, manufacturers and converters of these products resorted to various methods of technical processing or converting operations. Thus, the use of wax coatings for water vaporproofness and as water vaporproof laminating adhesives; treatment with urea and melamine resins for wet strength; laminating processes to gain waterproofness, strength, gasproofness, and grease resistance; and the use of lacquers to gain water vaporproofness, heat-sealing properties and grease resistance is found.

The protective packaging of industrial, food, and medicinal commodities for civilian consumption in the present and future constitutes one of the more attractive markets for suppliers of protectively processed paper, board, glassine, and cellophane, as well as for other packaging materials before mentioned.

Because of availability in large volume, relatively low selling prices, and susceptibility to processing with protective materials, paper, board, glassine, and cellophane are among the more suitable base stocks for use in the manufacture of protective packaging media. Regardless of its protective qualities, any packaging material will usually be evaluated with respect to its decorative appearance since, in the competitive civilian market, the relative decorative appeal of two packaging materials of equal protective value will be an important factor regarding its use.

Lacquers for Protection and Decoration

One of the most versatile processes for imparting protective and decorative properties to paper, glassine, and cellophane and, to a lesser extent, to metal foil, is that of lacquering. The protective value of such treatments for these materials has been amply evidenced by the successful use in this field, during the war, of lacquers based on nitrocellulose, cellulose acetate, and ethyl cellulose, and of other solvent-type coatings such as those based on vinyl resins, cyclized rubber (Pliolite), and chlorinated rubber (Parlon). From an economic viewpoint and technical versatility, the use of nitrocellulose lacquers is believed to offer an attractive approach to the problems of imparting protective and decorative properties to paper and glassine. The use of such lacquers to improve the protective value of cellophane and metal foil was an established procedure prior to the war, and a trend to the use of such methods for imparting protective properties to paper, glassine, and board was already apparent at that time. The major protective properties that can be gained from the processing of paper through the use of lacquers are heat-sealing, water

* Presented at a meeting of the Delaware Valley Section of TAPPI, Philadelphia, Pa., April 5, 1946.

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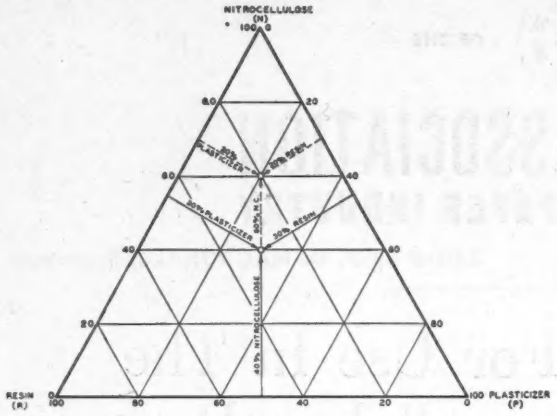

FIG. 1

vaporproofness, grease resistance, and some waterproofness.

Although it is unusual to find nitrocellulose paper lacquers which will embody all of the above properties to the highest degree of efficiency, they can be formulated to combine one or more of these properties in the film deposited on paper. Furthermore, lacquer films applied to paper can also be formulated to have flexibility at 32°F. and be nonblocking at elevated temperatures, thus enhancing the protective value of the packaging material. For food packaging purposes, a technical advantage is that nitrocellulose lacquers having protective qualities can be prepared with a reasonable freedom from odor.

Familiar to all are the essential solids ingredients of orthodox nitrocellulose lacquers used to provide protective films characterized by the properties cited previously. Such ingredients are nitrocellulose, plasticizer, resin, or combinations of resins and waxes. The cellulose ingredient provides toughness and tack-freeness in the film. Generally speaking, the higher-viscosity types of nitrocellulose, such as RS 5 to 6-second type, produce flexible coatings over a wider range than do the lower-viscosity types, such as RS 30 to 35 centipoise. However, use of the higher-viscosity types makes it necessary to reduce materially the nonvolatile content of the lacquer for any given viscosity of the application. RS Nitrocellulose* ½ second allows an excellent range of formulation, with respect to flexibility, at a maximum nonvolatile content of the lacquer. *Throughout the rest of this discussion the term lacquer is used generally to denote a nitrocellulose lacquer based on RS Nitrocellulose ½ second.*

The primary function of the plasticizer in the lacquer is to give flexibility. It should be chosen with care, especially with reference to any adverse effect it may have on the properties desired in the final coating on paper. Such properties might be freedom from toxicity or odor, nonvolatility, long flexibility life, insolubility in fats and oils, and alkali resistance.

Resin Choice for Lacquers

The resin component of a basic nonvolatile composition affords wide scope for varying the properties of lacquered paper. To achieve the maximum useful effect of the resin component it is generally desirable to include in the lacquer composition as much resin as is possible without detracting from the fundamental requirements of blocking resistance, flexibility, and freedom from tack. This is because the resin component in lacquer formulations has a primary effect on heat-seal characteristics, specific adhesion properties, and gloss; in conjunction with these properties it influences the effective water vaporproofing action gained through the use of paraffin wax and the grease resistance of a given lacquer film. Resins normally used as modifying ingredients for lacquers fall within one or the other of the following classes:

a. Modified and unmodified alkyds typified, respectively, by coconut or castor oil-modified phthalic anhydride resins, and by polyhydric alcohol esters of the terpene-maleic anhydride condensates (Petrex resins*).

b. Unmodified and modified rosin esters such as ester gums and maleic- and phenolic-modified rosin esters.

c. Natural gums such as dammar, shellac, manila.

d. Specially-designed resins of the urea, melamine, and sulphonamide types.

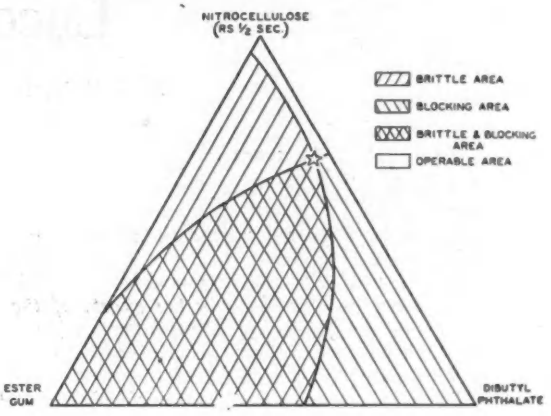

FIG. 2

As manufacturers of rosin-derived resins, the Hercules Powder Company has been investigating the usefulness of these various types of resins in protective and decorative lacquers for paper. The suitability of alkyds and resins derived from rosin for use in the formulation of protective, decorative lacquers for paper was checked by determining whether or not lacquer films containing the resins when applied to paper produced a lacquered stock which showed flexibility at 32°F., nonblocking properties at 120°F., and heat-sealing and grease-resistant properties.

Another test for the suitability of any particular resin for use in the formulation of paper coating lacquers was that a lacquer containing the resin, and possessing the properties cited above, must also be capable of being made water vaporproof by the addition of paraffin wax according to the principles described in the Charch and Prindle patents (U. S. Patents No. 1,737,187; 1,826,696; 1,826,699).

The resins selected for testing in the system composed of nitrocellulose:resin:dibutyl phthalate were as follows:

1. Glycerol esters of various rosin acids typified by wood rosin, polymerized rosin (Poly-pale*), hydrogenated rosin (Staybelite*), and Vinsol*.

2. Polyglycol esters of hydrogenated and polymerized rosin.

3. Glycerol esters of maleic-modified rosins (the Lewisol* resins).

* Reg. U. S. Pat. Off., Hercules Powder Company.

* Reg. U. S. Pat. Off., Hercules Powder Company.

4. Commercial types of alkyd resins, such as a castor oil-modified phthalate alkyd, and an unmodified polyhydric alcohol ester of terpene-maleic anhydride condensate (Petrex 7HT).

In all cases, evaluation of the resins in the nitrocellulose lacquer formulations tested was made using an RS Nitrocellulose ½ second solution of 25% solids; the solvent composition was 45% Tollac, 25% butyl acetate, 25% ethyl acetate, and 5% butyl alcohol. The resin solutions were made up to 75% solids in Tollac and were blended with the nitrocellulose solutions, with suitable adjustment of solvents to give proper application viscosities. Lacquer applications to the paper stock were from 30 to 35% solids solutions.

The first phase of the experimental program was to determine the optimum lacquer formulation with each type of resin. In this phase of the work, the optimum formulation was considered that which contained the maximum amount of resin and which, when deposited on paper, was characterized by flexibility at 32°F., and nonblocking properties at 120°F.

In the second phase of the program, the lacquered papers which showed satisfactory flexibility and nonblocking properties were evaluated with respect to the grease-resistance and heat-sealing characteristics.

In the third phase of the program, any lacquer formulations passing satisfactorily the requirements for flexibility, nonblocking, heat-sealing, and grease resistance were tested, after application to paper, to see if they could be rendered water vaporproof through the use of paraffin.

Testing Procedures

The testing procedure used in evaluating the various lacquer formulations called for applying each lacquer to a supercalendered starch-sized sulphite stock whose basis weight was 22 pounds per 3000 square feet (500 sheets, 24 × 36 inches). The coatings were applied by a knife coater to yield a dry coating weight of 8 pounds per 3000 square feet. The test papers were then air-dried for 15 to 25 minutes at room temperature and force-dried in a hot oven 3 to 5 minutes at 250°F. Each lacquered test specimen was then conditioned 18 hours at 77°F. and 50% relative humidity, and then tested as follows:

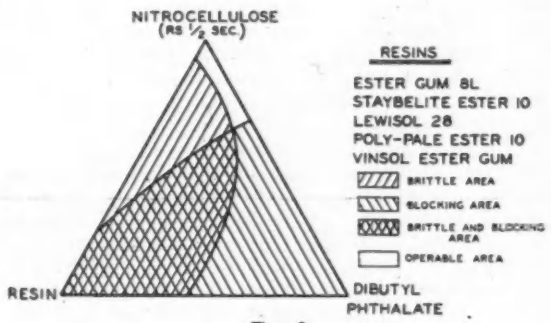

FIG. 3

Blocking Test. Test specimens, 4 × 5 inches, of the conditioned coated paper were placed between plate glass in a hot air oven with the coated sides of the paper facing each other. The stack of coated specimens, usually twelve in number, were placed under a pressure of 1 p.s.i. for 72 hours at a temperature of 120°F. Any specimen showing no evidence of any tendency for the surfaces to adhere at any point was classed as nonblocking.

Flexibility Test. This test was performed by making an inside crease, lacquered face to lacquered face, and an outside crease on the test specimen of lacquered paper and holding each crease under pressure of 0.35 pounds per linear inch for 15 seconds. One set of folds (an inside and an outside crease) was made on paper conditioned at 50% relative humidity, 77°F., and another set on conditioned papers with an additional 8 hours conditioning at 32°F. Satisfactory flexibility was judged by whether or not turpentine containing an oil-soluble dye penetrated the folds when applied to the test specimen.

Heat-Sealing Test. This test was performed with an electrically heated Welles heat-sealing iron at 275°F. The coated sides of two conditioned sheets were placed face to face, and the sealing iron rolled over the back of the folded test specimen under pressure of 3 to 5 pounds per linear inch.

Greaseproofness Test. A brass ring, 1¼ inch in diameter and 1¼ inches high, was placed on the coated side of the paper lying flat on a smooth surface. The ring was filled ¼ full with Ottawa sand. The sand was then saturated with a dyed turpentine solution. If at the end of 30 minutes there was no evidence of the turpentine having penetrated the paper, the lacquered stock was rated as grease resistant. The test was carried out at 77°F., 50% relative humidity.

Water Vapor Transmission Test: This test was made following the procedure specified for use with the General Foods Cabinet using a relative humidity of 95 to 100% at 100°F. The values were reported as grams of vapor transmitted per square meter of lacquered surface per 24 hours. Specified procedure is described fully in TAPPI Bulletin No. 2 for November 30, 1943.

Plotting and Analyzing the Data

In the first phase, determining the formula for optimum lacquer solids as regards flexibility and nonblocking characteristics, use was made of triangular coordinates or the so-called "ternary" diagram in the manner described by H. E. Hoffman and E. W. Reed in "Graphical Methods in Lacquer Technology," *Industrial and Engineering Chemistry,* Volume 20, Pages 430-436 (April, 1928). The ternary diagram, as pointed out by these investigators, is well adapted to revealing the behavior of a system containing three variables whose sum is constant. For this discussion any given point in the "ternary" diagram represents 100% of nitrocellulose + resin + plasticizer. The apex points N (nitrocellulose), P (plasticizer), and R (resin) (see Fig. 1) represents 100% of each component, respectively. Any point on the line NP represents a binary mixture of nitrocellulose and

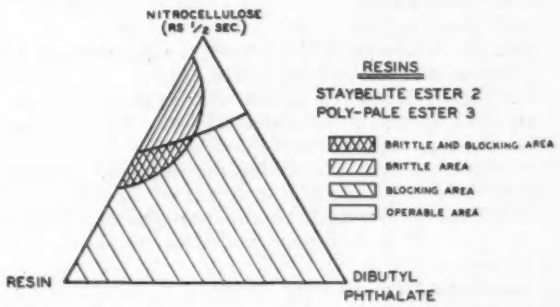

FIG. 4

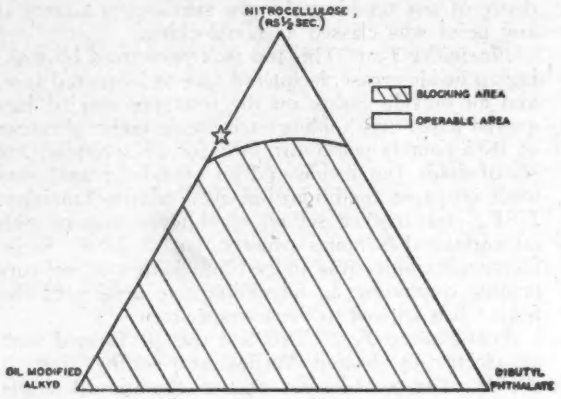

FIG. 5

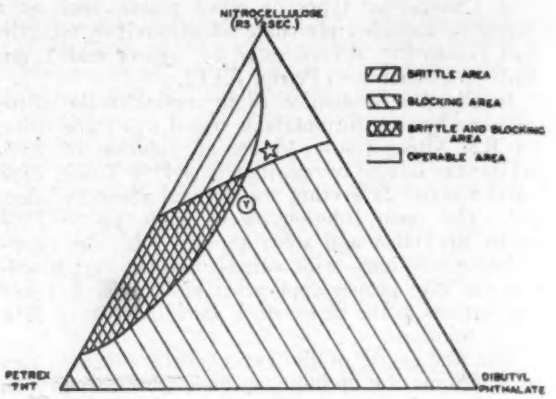

FIG. 6

plasticizer and any point on the line NR represents a binary mixture of nitrocellulose and resin. Any point within the triangle represents a composition consisting of nitrocellulose, resin, and plasticizer in proportion to the distance of the point from the origin points N, P, and R. Regardless of the point selected within the triangle, the total percentage composition is always constant and equal to 100%. For example, with the two points indicated by arrows in Fig. 1, the solids composition are, for the upper point, 60% nitrocellulose, 20% each resin and plasticizer, and, for the lower point, 40% nitrocellulose, 30% each resin and plasticizer.

The limiting ratios of ingredients from which it is possible to prepare lacquer formulations having definite properties may be plotted on the graph by evaluation of a sufficiently varied number of points in the diagram. These areas may be defined with regard to any given set of properties evaluated under any given set of testing conditions. The ternary diagram is used to define specifically the ratio limits within which nitrocellulose, dibutyl phthalate, and a given resin may be formulated to give a paper lacquer that would be flexible and nonblocking under the conditions of the tests. In the other diagrams, Fig. 2-7 inclusive, are charted the brittle area, blocking area, brittle and blocking area, and operable area.

Figure 2 shows how a ternary diagram helps in evaluating the system RS Nitrocellulose ½ second, dibutyl phthalate, and ester gum. Actual testing of various formulations to the left of the flexibility line shows these formulations to be brittle at 32°F. Similarly, all formulations below the blocking line were found to block at 120°F. All formulations to the right of the flexibility line were found to be flexible. All formulations in the area above the blocking line and to the left of the flexibility line were found to be nonblocking, but brittle. Only in the small area (clear in the graph) above the blocking line and to the right of the flexibility line were ester gum, nitrocellulose, and dibutyl phthalate formulations found which gave lacquered stocks that were flexible and nonblocking under the test conditions. An examination of this area showed that the best formulation (shown by a star) containing the maximum amount of resin having the greatest degree of flexibility and still nonblocking would contain approximately 5 parts ester gum, 30 parts dibutyl phthalate, 65 parts nitrocellulose.

Similar studies on hard rosin esters, including the glycerol esters of hydrogenated, polymerized, and maleic-modified rosin and of Vinsol showed that analogous results were obtained. Figure 3 is a composite ternary for these resins in the system nitrocellulose:dibutyl phthalate:resin. The approximate maximum amount of each of these resins actually found possible to incorporate in a nonblocking, flexible lacquer was as follows: 8% of the glycerol ester of polymerized rosin (Poly-pale Ester 10), 12% of the glycerol ester of hydrogenated rosin (Staybelite Ester 10), 8% of the glycerol ester of Vinsol (Vinsol Ester Gum), and 5% of the glycerol ester of maleic-modified rosin (Lewisol 28).

Studies in a similar manner were made on the usefulness of the polyglycol esters of hydrogenated and polymerized rosin; i.e., Staybelite Ester 2 and Poly-pale Ester 3. These are respectively the diethylene and the triethylene glycol esters of the rosin acid derivatives. The larger percentage of these types of resins that can be incorporated into flexible, nonblocking paper lacquers (Fig. 4) reflects the plasticizing nature of these esters since the expansion of the workable area is mostly at the expense of the plasticizer. Optimum formulations showed that about 10 to 15% of either of these resins may be incorporated in lacquer formulations that pass the flexibility and blocking tests.

The performance of a typical commercial castor oil-modified phthalate resin in paper lacquers is illustrated in Fig. 5. With such a plasticizing alkyd, no chemical plasticizer is needed because the lacquers are flexible in all ratios of nitrocellulose to resin. Study of this graph shows that a mixture of 30 parts of the alkyd resin and 70 parts nitrocellulose (shown by the star) yields nonblocking, flexible paper lacquers.

Petrex 7HT, a polyhydric alcohol ester of the terpene-maleic anhydride condensate, is another type of alkyd which is commercially used in paper lacquer formulations. The performance of this resin is illustrated in Fig. 6. Examination of the graph indicates the optimum formulation (shown by the star) containing the maximum amount of resin to be 17% with 19% dibutyl phthalate and 64% nitrocellulose.

Having determined the lacquer formulations with the maximum allowable amount of the resins to yield lacquered paper passing the flexibility and blocking tests, paper stocks lacquered with these formulations were then screened for grease-resistance and heat-sealing properties in the second phase of the program.

As has been indicated previously under the discussions on each resin or resin type, the optimum formulations developed in the first phase were those shown in Table I.

All of these lacquers passed the grease-resistance tests, but all except the one containing Petrex 7HT failed in the heat-sealing test. Even the Petrex resin formulation, however, was not considered entirely satisfactory because the heat-seal was not strong enough to rupture the coating when the sheets were pulled apart. Further experimental work demonstrated that if the amount of Petrex 7HT, or any of the hard rosin esters, was increased at the expense of the nitrocellulose and plasticizer so that the resin constituent approached a maximum of 30% of the total composition, excellent heat-sealing properties could be obtained. This, however, was not true for the oil-modified alkyd resin. By increasing the amount of the polyglycol esters of Staybelite and Poly-pale resin acids to 30% of the composition, heat-sealing bonds were obtained, but the bonds were relatively weak.

A re-examination of Fig. 6 shows that the formulation containing 30% Petrex 7HT, as represented by Point Y, would still be flexible but would not pass the blocking test. A second examination of Fig. 3, which is a composite ternary of the lacquer formulation containing the hard rosin esters, shows that an increase in resin content to 35% would yield brittle coatings only.

The above studies on the properties of modified and unmodified rosin esters and oil-modified and unmodified alkyds as related to the use of these types of resins in nitrocellulose lacquers show that the specific types of resins discussed do not yield, in a single formulation, a nitrocellulose paper lacquer combining the properties of nonblocking, grease resistance, heat-sealing, and flexibility over a wide range of temperatures. The data on the use of paraffin in the formulation of water vaporproof nitrocellulose lacquers utilizing these types of resins are not presented. A supplementary paper on this subject is in preparation; it will show the use of triangular coordinates in evaluating a new type of alkyd resin, which type of resin can be used to formulate nitrocellulose paper lacquers which have the combined properties of nonblocking, heat-sealing, grease resistance, flexibility over a wide range of temperatures, and can also be rendered water vaporproof through the addition of paraffin. However, it is demonstrated that the use of a triangular coordinate or "ternary diagram" can be an effective aid in evaluating the properties of a three-component nitrocellulose lacquer for paper.

TABLE I.—OPTIMUM LACQUER SOLIDS FOR GREASE-RESISTANCE AND HEAT-SEALING PROPERTIES

Resin	Resin, %	RS Nitrocellulose, ½ second, %	Dibutyl Phthalate, %
Ester gum	5	65	30
Staybelite Ester 10	12	65	23
Lewisol 28	5	85	10
Poly-pale Ester 10	8	75	17
Vinsol Ester gum	8	70	22
Staybelite Ester 2	15	70	15
Poly-pale Ester 10	8	75	17
Commercial oil-modified alkyd	30	70	..
Petrex 7HT	17	64	19

Chicago TAPPI Discusses Printing

The attendance at the February meeting of the Chicago Section of the Technical Association of the Pulp & Paper Industry confirmed the judgment of the program committee that a well-planned panel discussion is one of the most effective methods of assuring an audience—another large and appreciative group of men in the paper and allied industries heard three well-known representatives of the basic printing processes explain the principles of their respective methods.

Mr. Paul Twyman of the Miehle Printing Press Manufacturing Company, delivered a well planned dissertation on the oldest of the basic printing processes, letterpress. He stresses the importance of selecting the kind of paper best suited to the job in hand. Present-day refinements and the variety of printing surfaces offered demand a highly specialized knowledge in bringing the right kind of cuts, paper and ink together to get the most out of the subject and in reproducing to get fidelity of tone, detail and color.

Mr. Twyman explained the various grades of paper used for halftone printing and showed the varieties of screens best suited to each. He emphasized the important part the engraver must play in preparing the plates for a specific kind of paper, and also stressed the necessity of securing the advice of a competent, unbiased printer in determining the process to be used, from the standpoint of the results desired and the economies involved or necessary.

Rotogravure Intaglio Process

Mr. L. J. Remington, of the Champlain Co., Inc., presented a learned discussion of the rotogravure or intaglio process of printing. His remarks were illustrated with simple, easily understood sketches on the blackboard by Mr. Ed Coopat, an associate. Mr. Remington showed how it was possible, with the new precision-built rotogravure press, to print and fabricate in a single, continuous operation, including several colors, sheeting, slitting, perforating and scoring. This is possible only with precision-built machines and instant-drying, high volatile inks. He showed how gravure printing obviates many of the difficulties of register control, temperature differences and how the electric eye is used as a running register control. Make-ready, as the letterpress man knows it, is eliminated and ink supply is automatic. Press flexibility in regard to the number of designs that may be carried on a single impression and the ability of the cylinder to carry various widths of web, were brought out as great advantages of the gravure process.

Mr. Remington stressed another new development, namely the enclosed ink fountain, and explained in detail its construction and operation. The structure of the latest presses permit the quick and convenient removal of cylinder and ink tank, and the speed with which a press may be prepared for a new job was graphically illustrated. He emphasized the control of ink volume possible and the uniformity of color obtainable in gravure printing, and the wide variety of stock it was possible to use, as well as the ability to handle so-called "difficult" inks.

Offset Lithography

Mr. R. R. Perry of the Harris-Seybold Company, manufacturers of offset presses and paper cutting machinery, spoke briefly in introducing the new Kodachrome film, "Making a Good Impression." This colorful motion picture told graphically and dramatically the story of offset printing from the preparation of the copy, through the processes of making and preparing the printing plates, to the operation of the intricate, fascinating multi-color presses turning out the finished product-modern offset printing at almost unbelievable speeds.

The film illustrated graphically the evolution of the present day offset methods from the original stone-lithographical process and showed the finer working of the presses under telescopic lenses.

Economics Of Mill Instrumentation*

By Richard W. Porter[1]

Abstract

Application of instruments for measurement and control of process variables in the pulp and paper industry has grown steadily during the past two decades. Surveys disclose, however, that full value is seldom realized because many instruments are actually out of service or not operating correctly due to neglect or lack of maintenance.

Economic losses incurred when such conditions exist should be measured, not in terms of instrument investment, but rather in terms of functions not performed. These losses can only be avoided by instituting a realistic maintenance program. Every mill should have qualified instrument engineers and technicians to carry out such a program.

Although the importance of instruments to process operations is well recognized, the chances are ten to one that in many plants valuable instruments are not functioning correctly. The chances are probably even greater than ten to one since many mills still do not have their instrument programs under responsible leadership. This condition is indicative of general instrument neglect, from top management down. One reason for this condition is the lack of realization of the economic function of control instruments.

There is only one basic reason why instruments are used at all, and that one is economic. In any competitive industry, costs are always a paramount issue, one with which every engineer from the highest to the lowest should be vitally concerned. For it is his broad function to design, build, and maintain plant and equipment so that it is capable of producing maximum profits per unit time, or, in other words, minimum costs per unit of production. Modern engineering has brought a great number of instruments into pulp and paper mills, and this trend is accelerating. But, contrary to past experience, the application and installation of instruments must be accompanied by following through with a program of maintenance. Only by placing instrument maintenance on a par with that of other process equipment is it possible to fully utilize the possibilities of automatic control. To do this requires the services of qualified responsible instrument men.

The need for responsible instrument men is pointed up by the recent experience of a well-known pulp and paper manufacturer as follows: "We recently assigned one man to make a list of all instruments we had in the plant. These consisted of ordinary pressure gages; recorders, indicators, and controllers for such variables as temperature, pressure, flow, and others. A notation was made on the condition of each instrument. We were amazed to find the number that were obviously in need of attention. Later it was found that a large percentage of those which appeared to be in good condition needed attention also. This work has continued and we find that our instrument man has a full-time job." Surveys have emphasized the fact that full value is seldom received because many instruments are actually out of service or not operating correctly. Economic losses incurred when such conditions exist should be measured, not in terms of instrument investment, but rather in terms of functions not performed. To realize the need for an instrument maintenance program, it is necessary to recognize the basic economics of mill instrumentation.

First of all, control instruments would never have gained a foothold were it not for the possibility of saving money. Now, instrumentation is taken for granted, but in the early days of instrument development it was necessary to prove that the investment in instruments would be paid for by actual savings of money. Skeptical management, engineers, and operators were suspicious of the claims made for control instruments and it was not an easy task to sell the idea of using instruments. Now, however, this situation has changed immensely and although new ideas still have to prove themselves, it is not the uphill job that it was in the past. But it is the attitude of taking automatic control for granted that is causing much difficulty. The fact that instruments are installed and often forgotten or taken for granted shows the need for a program of maintenance to keep instruments in tip-top shape so that they can perform their functions.

Advantages of Automatic Control

A brief review of some of the basic economic advantages of automatic control should emphasize the importance of instrument maintenance. These are as follows:

1. Improvement of product quality, assurance of greater uniformity, and reduction of the amount of the low quality product. This is of fundamental importance.
2. Actual increase of production by smoothing out operations and by making it possible to run at maximum efficiency and top speed for any particular product.
3. Reduction of operating costs by preventing waste of process material. This includes steam and fuel as well as actual materials going into the product.
4. Reduction of equipment maintenance by keeping it operating within safe limits.
5. Elimination of the human element in plant operation. This improves operation, saves labor in some cases, and saves money.
6. Provides accurate records for use in analyzing plant operations, tracing the causes for off quality products, checking equipment efficiency, and providing a basis for cost distribution.

These points are closely related, but they all contribute to more economical operation. They could be expanded and analyzed in great detail but that is unnecessary for purpose of this discussion. It must be remembered, however, that each instrument has a definite purpose and no matter where in the plant it is located or what its function is, if it is worth installing it is worth maintaining. When an instrument is out of order it cannot perform to yield these economic savings. Therefore, the loss entailed by idle

* Presented at the meeting of the Technical Association of the Pulp and Paper Industry held at the Hotel Pfister, Milwaukee, Wis., Oct. 2-4, 1946.

[1] Member TAPPI; Chairman, TAPPI Mill Instrument Control Committee; *Chemical Engineering*, McGraw-Hill Pub. Co., New York, N.Y.

instruments must be considered not in terms of instrument cost but in terms of lower quality, lower efficiency, and decreased production.

Special attention should be given to the value of accurate chart records. These are extremely important in analyzing equipment operations and give valuable information to operators, engineers, and management. But when instruments are chronically out of order, chart records mean little and are merely glanced at and filed away. To be of any value these records of plant operation must come from instruments that are maintained to the highest degree possible. Only then can anyone have confidence in the information received therefrom.

This is emphasized by the stress placed on the need for accurate data by the recently formed TAPPI Committee on Statistical Quality Control. This rapidly growing science depends to a considerable extent on the data provided by instruments. It cannot function without accurate operating data. Hence, this new committee in TAPPI which is promoting the use of statistical quality control methods requires first that data obtained from instruments be honest and accurate.

Most engineers are generally familiar with the many applications of automatic control on major processes and equipment. Any one of these is a subject for full blown discussion. While many of these are adequately instrumented, many of them can be and are being improved. More important, however, is to use the present instruments to full advantage. It is necessary to realize the need for a continuing progressive instrument program, not only during periods of expansion when new equipment and instruments are being installed, but more important, to perpetuate this program by giving to a single individual or department the major responsibility of instrument maintennace.

Instrument Maintenance

At the present time there are many systems in use, from complete instrument departments to the part-time services of a mechanic or helper. Obviously no two mills require the same setup, but it is essential, whether a mill be large or small, that at least one man have the principal job of looking out for instruments. Where a large number of instruments are installed, it is frequently desirable to have a full instrument department headed by a qualified engineer, capable of training his own technicians or maintenance men. But in many mills, especially the smaller ones, this extensive program is not feasible.

It is paramount that each and every mill have on its payroll at least one capable and qualified technician who can keep all instruments in tip-top shape. Obviously, the average electrician, mechanic, or maintenance man is not qualified for this work. An instrument technician must be a combination of electrician, mechanic, pipefitter, and watchmaker. A problem today is where to find such technicians.

Undoubtedly there is a shortage of instrument technicians in the face of a growing need. Just as other highly instrumented industries have met this problem, so must the pulp and paper industry. Where qualified engineers are available, it is possible for a mill to train its own technicians. However, it is a well-known fact that many engineers have not had sufficient experience with instrument details to handle this kind of an assignment.

Perhaps the best method is to take advantage of the educational services offered by the instrument manufacturers. Most of the major instrument companies provide instrument courses which are open to industry men. These courses range from full terms of several weeks of intensive training on all major types of instruments to special courses lasting only a few days, fitted for the particular requirements of individual men.

While in the future the number of skilled men at this trade will increase and the problem will not be as acute as it is now, every mill should, as a vital part of its instrument program, obtain the services of instrument technicians even if it requires sending their own men to instrument schools.

It is extremely important that engineers and executives charged with plant operation and maintenance realize the importance of instrument maintenance. The pulp and paper industry today is on the threshold of a new era in which costs of production will be scrutinized more closely than ever before. In view of this, it behooves the industry to take full advantage of instrument opportunities. One way to do this is to promote a progressive instrument maintenance program.

Hudson Valley Section Meets at Glens Falls

Dr. Stuart Sturges of South Glens Falls, who was connected with the Manhattan Project at Oak Ridge, Tenn., and witnessed the atom bomb test at Bikini, was the principal speaker at a dinner meeting of the Hudson Valley Section of TAPPI at The Queensbury, February 21, 1947. Dr. Sturges showed films of the activities on "Able and Baker Days." He said that even 12 miles away the infra-red rays could be felt and that it was as if the sun had suddenly become hotter. He was among the first to enter the blast after the test.

Allen A. Lowe of the Sandy Hill Iron and Brass Works spoke on "Fourdrinier Paper Machine Flow Calculations." Henry Fales presided and the committee in charge was comprised of Foster P. Doane, Jr., Lawrence Ross and A. B. Copping.

Among those present were: R. Collins, Allan B. Copping, J. W. Crocker, W. E. Deland, Foster P. Doane, M. R. Driscoll, R. M. Drummond, H. W. Fales, Paul A. Fasoli, Frank N. Foster, I. W. Fox, Howard Freeman, M. B. Gormley, Charles J. Grant, K. Hamsten, Clayton R. Howe, Edward Hutchins, Carl Krancher, Allen A. Lowe, F. J. McCourt, R. McKee, B. Meesook, R. E. Merkey, A. L. Mosher, R. D. Moynihan, Harry Newell, John Patten, Lawrence Ross, F. G. Russell, C. H. Sailer, R. E. Smith, Stuart Sturges, Edward C. Tallman, Ernest C. Walen.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Antonio Bayarte, Industrial Engineer, Celulosas Mexicanas S.A., Mexico, D.F., a 1922 graduate of the Industrial Engineering School of Barcelona, Spain.

Alexander J. Cameron, Technical Service Engineer, Canadian Industries, Ltd., Montreal, P. Q., Canada, a 1932 graduate of McGill University.

William Carr, Chemist, The Geigy Co. Ltd., Manchester, England, a 1938 graduate of Liverpool University.

Robert E. Carrigan, Chemist, Union Wadding Co., Pawtucket, Rhode Island, a 1923 graduate of Brown University.

An Approach to a Critical Study of Pulp Washing at National Container Corporation*

By R. C. Richter[1]

Abstract

The equipment and operating methods for washing kraft pulp at the Jacksonville, Florida, mill of the National Container Corporation are described. Available methods for determining the soda retained in the washed pulp are discussed critically and a satisfactory method for routine control is proposed.

With an average daily production of 262 tons of air dry pulp the retained soda was found to average 40.5 pounds, as salt cake equivalent. Fresh water introduced into the system was 0.85 gallons per pound of air dry pulp. The water temperature averaged 144°F. The evaporator feed liquor had an average solids content of 17% and temperature 185°F. The net over all dilution of black liquor was a little less than 1.7 pounds of water per pound of air dry pulp. There was no loss to sewer.

A table of analytical and production data is submitted.

Modern pulp washing to be satisfactory must satisfy three conditions: the first of these is the production of a clean pulp for the paper machine, the second a minimum dilution of the evaporator feed liquor, the third is that a minimum of weak wash liquor be discharged in the mill effluent.

This is accomplished at National Container Corporation through the use of a closed system of four single-stage 8-foot diameter by 12-foot wide IMPCO washers with barometric leg. The original installation was made using vacuum pumps which were discarded as the barometric leg gave more satisfactory results.

A first prerequisite in planning a study of the washing efficiency was found to be the evolving of a satisfactory method for determining the total residual soda in the washed pulp. In short it was found that the most accurate method appeared to be careful ignition of the pulp and determining gravimetrically the sodium in the ash by the magnesium uranium acetate method of Scott *(1)*. This is, however, too slow for routine control work and it is hoped that a speedier electro-chemical method of comparable accuracy can be developed.

In preparing the pulp samples for analysis it was found to be necessary to remove the rejects so as to avoid variations due to uneven distribution. These rejects were removed by hand picking.

It is manifestly impossible to obtain a sample of size suitable for analysis which will contain the same proportion of these rejects as the whole mass of pulp. At the National Container mill all screen rejects are returned to the digesters for recooking, thus recovering the soda they retain. Therefore, it is felt this preparation of the sample is fair.

Sample Preparation

One of the first steps in this study was to ignite a large sample (1600 grams moisture-free) of pulp and the total sodium determined both gravimetrically and by difference. Results showed that the routine testing method heretofore employed (viz. ignition with sulphuric acid to convert all sodium to sulphate) gave too high values for residual soda. This method does, however, serve a good purpose in showing up day to day variations in washing efficiency.

The pulp samples collected for the washing efficiency checks may be considered of two types. The samples of pulp taken from the vat before each washer being slush type, and that taken as the pulp was leaving as semislush. For this reason the samples were collected differently.

The slush type was taken using an 8-quart bucket. The bucket was plunged into the vat and allowed to fill completely. In order to secure a sample that represented average conditions preliminary consistency checks were made at regularly spaced distances along the length of the vat. From those checks the sampling point was selected for each washer.

In sampling the pulp leaving the washer the semislush, the samples were taken at definitely spaced intervals across the doctor blade following the take-off roll. Care was exercised so that none of the liquor acting as the vehicle for the pulp would be pressed out before the sample was placed in the container.

The digester liquor was taken from the quick opening valve used for sampling the digesters. The evaporator feed liquor was taken from a sample cock in the feed line.

Testing

Since black liquor of varying concentrations serves as the vehicle in transporting the pulp from the digester on through the washing system obviously there must be a definite relationship between the concentration of the liquor and the residual soda in the pulp. This is somewhat analogous to the law of partitions of a solute between immiscible solvents. It follows from this that it should be possible to determine residual soda by analysis of the liquor expressed from a sample of pulp under carefully standardized conditions. In the laboratory this was done in a clothes wringer with controlled pressure. Pulp pressed in this manner retained approximately 50% moisture. A measured sample of the liquor was acidified with concentrated hydrochloric acid to coagulate the organic matter and the mixture made up to a definite volume in a volumetric flask. After settling sodium was determined in an aliquot

* Presented at the meeting of the Technical Association of the Pulp and Paper Industry held at the Roosevelt Hotel, New Orleans, La., Oct. 14-16, 1946.

[1] Member TAPPI; Assistant Pulp Mill Supt., National Container Corporation, Jacksonville, Fla.

ot suitable size, depending on the concentration, by the magnesium uranium acetate method. Check tests were made on the original pulp samples by igniting and applying the magnesium uranium acetate method to the ash. The two methods agreed within a range of from 5 to 12 pounds, as saltcake, per ton of moisture-free pulp.

The method of pressing out the liquor and determining the sodium content of the expressed liquor was employed in studying the pulp entering the washing system, and as it came to and left each stage. For the final washed pulp from the fourth stage sodium was determined also in the ash after ignition. Immediately after the pulp samples were taken, samples of liquor were taken from the digester as it was ready to blow and from the feed line to the evaporators. Attached in tabular are the liquor characteristics as shown by analysis.

The total alkali fed to the digesters, calculated as saltcake equivalent, is 1870 pounds. The per cent removal based on the difference between this figure and the amount left in the pulp is:

By analysis of the liquor 97.8%.

By analysis of the ash from the pulp 97.2%.

The results are an indication of the close relationship between the amount of soda left in the pulp and the concentration of soda in the final wash liquor. Evidently, although not absolutely correct the correlation is satisfactory for a routine control method.

Results

At the National Container Corporation pulp mill in Jacksonville an average of 262 tons of air dry pulp per day is washed to a residual soda calculated as saltcake equivalent of 40.5 pounds per ton with an addition of 0.85 gallons of fresh water at 144° per pound of air dry pulp. The evaporator feed liquor averages 17% solids with a temperature of 185°F. The dilution of the liquor from the digesters to the evaporators is less than 1.7 pounds of water per pound of air dry pulp.

A factor of importance in washing efficiency which is all too often overlooked in a study of this kind is the condition of the drainage system and facing wire on the final stage washer. Shortly after souring out with inhibited acid the residual soda dropped to 29.7 pounds per ton of air dry pulp.

It had been hoped to include in this study some results showing the effect of removal of knots and screen rejects before washing. Unfortunately the Jonsson screens had not been in operation long enough for accumulation of sufficient data on which to base definite conclusions. In one 24-hour period, however, the residual soda was only 27 pounds calculated as saltcake equivalent per ton of air dry pulp.

Future work is contemplated in which it is hoped to correlate such factors as: chip size, per cent rejects, size of rejects as classified by the William's chip screens, analysis of mill water supply, vat dilution, speed of drum, cleanliness of drainage of facing wire, temperature of wash water, and hardness of pulp as determined by the TAPPI permanganate number. To have a complete study of washer efficiency it is felt that all of the above are contributing factors to the cleanliness of the pulp and the quantity of the salt cake equivalent recovered.

TABLE I.—BLACK LIQUOR CHARACTERISTICS

	Specific Gravity at 60° F. = Bé at 60° F.	% Solids	G./L. Na_2O	Lb. Na_2O/ 1000 gals.
Blow liquor	1.109	22.0	54.6	456
Feed to No. 1 washer	1.084	17.0	47.9	400
Evaparator feed	1.083	16.6	41.2	344
Leaving No. 1 washer	1.062	11.7	28.3	236
Feed to No. 2 washer	1.031	6.9	14.9	124
Leaving No. 2 washer	1.030	4.9	12.0	100
Feed to No. 3 washer	1.008	2.0	4.8	40
Leaving No. 3 washer	1.005	1.4	2.6	22
Feed to No. 4 washer	1.002	1.2	1.6	13
Leaving No. 4 washer	1.001	1.0	1.1	9

TABLE II.—CONSISTENCIES TO AND FROM EACH WASHER AND SALTCAKE PER TON PULP O. D.

	% Consistency Moisture-free	Saltcake/Ton Moisture-Free Pulp, lb.	% Removal of Feed to Residual Saltcake/Ton Pulp Moisture free
Feed to No. 1	1.58	14,614	
Leaving No. 1	13.03	1,046	92.8
Feed to No. 2	1.16	6,171	
Leaving No. 2	13.74	419	93.2
Feed to No. 3	1.38	1,672	
Leaving No. 3	13.52	94	94.4
Feed to No. 4	1.73	434	
Leaving No. 4	13.00	14	90.6

Residual saltcake from ash analysis 53 lb./ton pulp.
Per cent over-all removal from analysis of liquor 99.7.
Per cent over-all removal from ash analysis 99.6.

Literature Cited

1. Scott's Standard Methods of Chemical Analysis, Volume I, Fifth Edition, D. Van Nostrand Company, Inc.

TAPPI Notes

Samuel R. Olsen has been transferred from Hamilton, Ohio, to Pasadena, Texas, where he is assistant to the superintendent. Mr. Olsen was chairman of the TAPPI Ohio Section.

D. M. Yost of the Sorg Paper Company has succeeded Mr. Olsen as chairman of the TAPPI Ohio Section.

Frank J. Lovegren, formerly of the Inland Empire Paper Company, is now chemist for the Empire Box Company, Stroudsburg, Pa.

K. Helge Holm, formerly of the Terre Haute Paper Company, is now assistant technical director of the American Coating Mills, Elkhart, Ind.

T. Ross Moore, formerly of the Gaspesia Sulphite Company, Ltd., is now mill manager of the Anglo-Newfoundland Development Company, Ltd., Grand Falls, Nfld.

Joseph C. Clark Jr., formerly of the West Virginia Pulp and Paper Company, is now in the research department of the Crossett Lumber Company, Crossett, Ark.

Charles Webber of the Bristol Company of Canada, Ltd., is now district manager of the Bristol Company, Book Building, Detroit, Mich.

Leon J. Gold has succeeded Roy E. Hanson as official representative of Milprint, Inc. in the Technical Association.

The TAPPI New England Section will meet at the Statler Hotel, Boston, Mass., on Friday, March 21, 1947.

The TAPPI New England Section will meet at the Statler Hotel, Boston, Mass., on Friday evening, March 21st. D. D. Uong, Vice President of the Fitchburg Paper Company, will report on his visit to Formosa, where he studied the paper industry. G. H. Sullivan, packaging engineer for the Frozen Foods Foundation, Syracuse, N. Y., will report on the work of his organization.

The March meeting of the Chicago Section to be held on Monday evening, March 17th, at the Chicago Bar Association, is to feature a discussion of Personnel Problems and Employee Relations.

A. Watson Chapman, Research Supervisor. The Celotex Corp., Chicago, Illinois, a 1927 Graduate of Tulane University.

John W. Clough, Group Leader, E. I. duPont de Nemours & Co., Inc., Parlin, New Jersey, a 1927 graduate of Rensselaer Polytechnic Institute.

Lake States TAPPI Panel on Stream Polution

Three speakers discussed the problem of Stream Pollution at a regular meeting of the Lake States Section of TAPPI, Tuesday, February 11, 1947, at 6:30 p.m., at the American Legion Club House, Appleton, Wisconsin. About 110 men registered.

Willis M. Van Horn, Research Associate of The Institute of Paper Chemistry, started off the program with a talk entitled "A discussion of the Problem." Dr. Van Horn outlined the reasons for the problem of stream pollution and stated that public opinion will soon force the imposition of penalties for pollution by pulp and paper mills. In discussing what happens to a stream when polluted, Dr. Van Horn pointed out that the natural flora of a stream may be thrown out of balance by (1) decrease in oxygen content, (2) toxicant action, (3) the deposition of solids creating unfavorable environment for the natural flora. Of these three methods oxygen reduction in the stream is the most serious problem involved in pollution by the pulp and paper industry.

J. M. Holderby, Research Coordinator, Sulfite Pulp Manufacturers Research League, Inc., next discussed "What Lake States Sulfite Mills Have Done About the Problem." Mr. Holderby stated that there are two classes of wastes in the sulfite field: (1) visual, bark, screenings, white water, foam, etc. which are really of not much consequence and (2) oxygen consuming pollution. Mr. Holderby described various research groups which were organized to discover disposal methods for waste sulfite liquor and to develop utilization of waste materials recovered therefrom. Work done by the Wisconsin group over the last six years was outlined. In closing Mr. Holderby stated that the oxidation products of lignin recovered from waste sulfite liquor may have a very interesting future and that the most active project now underway is that of yeast production from waste sulfite liquor.

M. L. Downs, Technical Director, Thilmany Pulp & Paper Company, and Chairman, Wisconsin Kraft Subcommittee, National Council for Stream Improvement, spoke on "What Wisconsin Kraft Mills Have Done About the Problem." Dr. Downs outlined the history of the Wisconsin kraft subcommittee of the Nation Council for Stream Improvement and discussed the work and accomplishments of this group. He stated that the main pollution problem of kraft mills was not one of oxygen consumption as encountered in the sulfite pulp industry. In a study of the toxic effect of black liquor on fish, it was shown that black liquor was not very toxic up to a dilution of 1/3000, and did not affect fish taste at that concentration. In a later test on fish exposed to black liquor under actual river conditions, it was shown that oxygen depletion did not kill the fish, but that temporary toxic conditions could be set up by the sodium salts of fatty acids, resins, dimethyl sulfate, methyl mercaptan, NaS, and NaHS. In addition it was found that Soda cooks are almost as bad from the solution standpoint as kraft cooks, which largely ruled out methyl mercaptan as a serious toxicant in the liquor. Latter work caried on at the Institute of Paper Chemistry led to the development of methods for the determination of toxic constituents in kraft effluent and the most recent work discussed the effect of these toxicants on fish foods. This work showed that they are no more toxic to fish foods than to fish. In summarizing Dr. Downs indicated that with tall oil recovery methods now being practised, the present levels of solution created by kraft mills are satisfactory. Kraft mills do not have an oxygen consuming pollution problem, and as time goes on should have actually a lighter problem of solution due to the removal of the sodium salts of turpentine, resins, and fatty acids.

Those present included: E. P. Adams, A. P. Adrian, S. I. Anderson, L. H. Andrews, J. Atchison, M. C. Baker, J. D. Bates, A. Beaman, R. M. Billings, G. J. Brabender, L. J. Broehm, M. A. Buchanan, A. H. Bunks, D. Bush, A. Byfield, T. C. Catlin, W. M. Carr, G. Carroll, H. A. Chuse, J. B. Clarke, G. L. Clarke, C. W. Converse, R. J. Courtney, H. P. Dixon, M. L. Downs, R. F. Dunger, R. Elias, G. F. Enderlein, W. A. Fannon, L. V. Forman, K. W. Fries, J. W. Fulton, H. F. Gardner, J. P. Gerhauser, T. M. Gillespie, J. H. Graff, H. C. Graham, L. B. Greiner, J. W. Grimes, P. Hansen, J. A. Hanson, R. S. Hayden, A. M. Heald, T. M. Helf, M. Heath, R. W. Henschel, L. C. Heroman, J. M. Holderby, T. A. Howells, C. E. Hrubesky, J. A. Hull, E. G. Ingalls, A. F. Jankowski, R. Jebens, P. E. Jones, W. S. Kennedy, L. L. Klinger, O. Kress, J. J. Kryszak, O. Kuemmerling, H. Lausman, R. B. Lundy, F. R. MacGonagle, N. L. Malcove, A. E. May, M. R. Meidam, W. L. Meisle, P. J. Metz, Jr., J. Meyer, C. Moe, L. A. Moss, H. Norseen, S. R. Parsons, F. G. Pavlick, A. Phillips, S. Pollock, F. W. Poppe, W. B. Pusey, C. F. Reinhardt, J. R. Salvesen, L. Smith, R. G. Smith, F. X. Spinar, C. W. Steele, R. A. Stilings, J. P. Strasser, R. M. Stuart, S. R. Turner, S. A. Trivedi, J. A. VandenAkker, H. Vanderhei, W. M. VanHorn, R. A. Vogt, E. H. Voightman, B. Wallin, H. H. Wendshuh, C. J. West, Jr., J. Woodwage, C. E. Youngchild.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Robert J. Purdy, Technical Director, The Orr Felt & Blanket Co., Piqua, Ohio, a 1938 graduate of Purdue University.

James Ritchie, Director, South African Bureau of Standards, Pretoria, South Africa, a Fellow of the Royal Institute of Chemists.

William A. Robinson, Chief Chemist, Florida Pulp and Paper Co., Pensacola, Florida, a 1939 graduate of the University of Florida.

O. K. Ronning, Graduate Student, New York State College of Forestry, Syracuse, New York, a 1943 graduate of the Technical University, Norway.

Reynold W. Selmser, Chemist, Brownville Board Co., Brownville, New York, a 1933 graduate of the New York State College of Forestry.

William J. Sprau, Chemical and Mechanical Engineer, Detroit Sulphite Pulp & Paper Co., Detroit, Michigan, a 1934 graduate of Purdue University.

Claude M. Stitt, Plant Manager, Fibreboard Products, Inc., Antioch, California, a 1924 graduate of the University of California.

Harold C. Wall, Chief Chemist, Longview Fibre Co., Longview, Washington, a 1929 graduate of the University of Washington.

Samuel T. Weber, Sales Engineer, Black-Clawson Co., Hamilton, Ohio. He attended Antioch College.

Robert J. Yaeger, Industrial, Technical Sales, Ansul Chemical Co., Marinette, Wisconsin, a 1934 graduate from Oshkosh State Teachers' College.